ODIORNE SHORE STEWARDS FINAL REPORT

Seacoast Science Center, Odiorne Point State Park

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Introduction

Background

The Seacoast Science Center is located in Odiorne Point State Park, 3 miles south of Portsmouth on the coast in Rye, NH. There are seven different habitats in the 335 acre park, all of which can be reached through secluded seaside trails. Salt marshes, uplands, a meadow, marsh, pond and the rocky coast and Gulf of Maine can all be experienced at Odiorne. There are stumps of trees that drowned when the last great glacier melted about 11,000 years ago. The cobble beaches, and rocky shores provide some of New Hampshire's best tide pools for exploration and discovery.

Along many of the park trials you can see remnants of fortifications and estates, old formal gardens and giant bunkers. From the rocky shore you can see four light houses, four historic forts, the Isles of Shoals, and breathtaking ocean views.

A hybrid between an aquarium, museum and educational facility, the Seacoast Science Center (SSC) has cultural and natural history exhibits. Open all year, visitors can touch and learn about tide pool animals in the indoor tide pool touch tank and learn about the seven habitats found in the park. From the ice ages to the resort age, from fishing and farming to coastal defense, the land and the way people have used it changed together. The Seacoast Science Center also offers programs for families, organizations, schools and groups, as well as seasonal nature walks for park visitors. Many programs are free; others require registration. Since the SSC opened in June, 1992, over 100,000 people have visited the Center.

Purpose

Traditionally known for spring elementary school programs, the plan was to develop new programs for non-elementary level groups in the fall and off-seasons. The purpose of this project was to develop year-round educational programs at the Seacoast Science Center (SSC) which included the use of new sea tank exhibits. By creating a fall slide show and in-door scavenger hunt activities as a part of this project, programs were given throughout the year and to a variety of audiences, which included middle and high school students and the general public.

The funding for this project also enabled the SSC staff to obtain the materials, supplies and equipment critical for effective field programs. Throughout the grant period, portions of the three main programs developed were conducted at the SSC as part of the *Seasons of the Sea* series, vacation camps and school programs. One of the most popular family program in 1992 was *I Remember Mammals* developed as part of the upland program and conducted on November 15, 1992.

Work Tasks and Products:

1. Program and guide development

Three programs were developed, they are: 1) fall tide-pool slide presentation and program 2) upland habitat and mammals, 3) freshwater pond. These programs were conducted at the Seacoast Science Center for school groups, general park visitors and as part of the curriculum for environmental day camps. From July - April, 13 programs were conducted for the public and in SSC environmental day camp programs. From fall to spring, 1992-93 over 24 slide shows were conducted for school groups, some as part of their field trips to the park. The calendars/schedules for these programs are highlighted in program literature portion of the Appendix. The script for the first two programs and the lesson plan for the pond also is in the Appendix.

2. Acquisition of supplies and equipment
A reference list was developed to identify the books and field guides needed to develop and conduct these programs. Books and field guides were acquired for reference to develop these programs. Additional books acquired for use in the the programs include but are not limited to children's books for camp activities and field guides to use outdoors. These books are housed in the SSC library and are available for reference use by the public.

The materials, supplies and equipment required to conduct these programs at the Center and in the field were acquired throughout the contract period. These include: limnology kits, orienteering kits and compasses, pH meters, field scopes, O_2 meters, dissecting kits and nets. This equipment has already proven extremely valuable for all our teaching programs.

3 & 4. Develop pre-trip activities and reference list and printing of guides
Many activities were developed for these programs. These are attached in the Appendix. They include tracking guides, bird and mammal checklists, and worksheets. The tracking guides were used in field programs to identify animal and bird tracks found throughout the park. The checklists were used by park visitors as they track the birds and mammals they have seen throughout the seacoast. Worksheets were used as pre- and post-trip activities by school groups and in camp. SSC scavenger hunts were developed for off-season use which encourage exploration and observation using the SSC exhibits. Field scavenger hunts were used outdoors to learn how to identify habitats and the different plants and animals in each.

Also developed, but not attached was a "Pond-in-a-Box" a 3-dimensional teaching aid and activity which allowed students to see what lives in a pond. As part of the upland mammal program, an exhibit on bats was developed and displayed in the Brown Exhibit Hall. The exhibit was first displayed in the fall, and has been displayed periodically since.

Guides, program descriptions and worksheets were printed or duplicated for the programs. This includes the checklists and guides described above, as well as park maps, activity/worksheets and program literature (see Appendix). All of these activities have proven successful enough to be incorporated in future programs offered at the Center.

5. Slide presentation
A tide pool slide show was prepared as part of the fall tide-pool program. Sets of the slides and its scripts have been available to educators through the SSC Nature Store and school program literature. This show has also been used as part of pre-trip activities for teachers and as out-reach throughout the year by SSC staff.

An additional slide show is recommended which will introduce visitors to the Brown Exhibit Hall. This show should include proper use of the tide pool touch tank (funded by in part by the New Hampshire Coastal Program).

6. Docent/teacher training
For all of the programs developed for this grant, volunteer training was very important. From adults to high school students at the Learning Skills Academy, volunteer instructors were trained to assist in conducting these programs. SSC staff provided additional training for UNH Marine Docents to conduct tide pool programs in the fall. This included lectures and field trips. Twelve students from the Learning Skills Academy were also trained to assist with animal identification during fall field trips and in-door programs using the exhibits. They attended three 3-hour training sessions, and came to the Center a total of 22 times.

7. Program delivery at SSC
Programs were conducted by the SSC program staff, docents and trained volunteers. This is the first time that so many programs were available after the summer season. After a majority of these programs, evaluations were given and the resultant recommendations will be incorporated in future programs.

8. Teacher evaluation and Revision of Coastal Issues Curriculum
On February 9, 1993, the revised Coastal Issues Curriculum slide show was presented to students at the Oyster River High School. A part of the school's Environmental Awareness Program, the revised slide show addressed human impact and conservation on the marine environment. As a result of the presentation, the following recommendations are suggested:

A) add new slides to show critical areas as they look today
B) re-write the script to include more current issues
C) develop classroom activities to reinforce information

Summary
The programs developed as part of this grant have greatly widened the educational scope of the Seacoast Science Center. These programs added year-round options for schools, as well as programs for all park/Center visitors.

The new programs were popular with the public, however, interest by school groups in upland programs during the spring season was disappointing. This is probably because Odiorne is known for its remarkable tidepooling, and most educators do not think of Odiorne in terms other than marine. It is anticipated that over time more educators will think of the SSC when they think of *all* environmental education. Interest in non-marine programs at SSC has been demonstrated. Throughout the year SSC offers vacation day camps, and attendance in the pond and upland sessions was solid.

This project was carried out by the Audubon Society of New Hampshire, and conducted throughout the seacoast region and at the Seacoast Science Center at Odiorne Point State Park in Rye, New Hampshire.

APPENDIX: Worksheets, guides, activities and printed materials

Upland program materials/activities

Tracking Guide
Mammal Checklist
Bird Checklist
Tree Worksheets
Scavenger Hunts

The Ecology of Odiorne Point's Rocky Shore

1) (Seacoast Science Center)

Along the Atlantic Coast of North America, rocky shores predominate north of Cape Cod, Massachusetts. Over the ages, waves, wind, weathering and sea-level changes had profound effects on the rocky coast. Cliffs, bays and headlands became the caves, arches, ledges, and pebble beaches of our coast. Along the Hew Hampshire coast, the sea level at low tide is six to eight feet lower than high tide. Basins and rock outcroppings in the rocky shore trap water on the outgoing tide. These tidepools are home to a variety of intertidal organisms. You are about to tour this rocky shore, and explore the organisms which are found between the tidelines.

(2) (Splash, Upper & Middle Zones)

A rocky shoreline at low tide has distinct horizontal bands, or zones. Each intertidal zone is a habitat for plants and animals that have adapted to life in that zone. The land/sea boundary marks the beginning of the highest intertidal zone known as the splash, or black zone. The blackish coloration of this zone is blue-green algae. This algae is adapted to life in a tidal zone which is never submerged, but is wet from wave splash. The algae is an important food source for the only animal common in this zone, the Rough Periwinkle, *Littorina saxatilis*. This snail has gills and a lung-like organ, which allows it to be exposed to air for long periods of time. Also shown is the upper or white zone and the middle or rockweed zone.

(3) (Barnacles)

The upper or white zone is so named because of the animal which gives this zone its white appearance--the Northern Rock Barnacle, *Semibalanus balanoides*. Barnacles are little, shrimp-like animals, standing on their heads in a limestone house and kicking food into their mouths. After spending a few weeks in the spring floating in the ocean, barnacle larvae settle onto a hard surface and cement themselves to it, building a volcano-shaped shell. They are crustaceans and are related to crabs, shrimps and lobsters. As they can't move around like lobsters and crabs, they keep moisture in the shell at low tide by closing their top two plates. If you look closely when they are under water, you can see them feeding by sweeping the water for plankton (microscopic organisms). The largest barnacles that you see on our rocks may be up to five years old; after the barnacle dies, the empty shell remains behind.

(4) (Common Periwinkles)

The Common Periwinkle, *Littorina littorea*, is one of the most widespread animals on our shore. When out of water, this periwinkle, like many marine snails , prevents drying out by glueing itself to the rocks until the tide returns. These large, brown snails feed on algal film on rocks and the algae found in tidepools. They can withstand temperature extremes from 5 to 115° F. Thousands of these periwinkles can be seen at Odiorne Point in the area known as the "drowned forest."

(5) (Bladder Wrack)

The next zone down the shore is the middle or rockweed zone, dominated by the brown algae commonly referred to as seaweeds. There are two common plants: Knotted Wrack and Bladder Wrack. Bladder Wrack, *Fucus vesiculosis*, shown here, is greenish-brown and has broad, flat blades ending in Y-shaped forks. Air bladders help it float, enabling it to photosynthesize and grow. This algae is found slightly higher in this tidal zone than the Knotted Wrack.

(6) (Knotted Wrack)

Knotted Wrack, *Ascophyllum nodosum*, is the other brown alga which has a rubbery texture and rounded blades. It is found largely in lower zones than the rockweed, and it also has air bladders (also called knots) in its stem to help it float. It is relatively long-lived, living several years and growing from six to ten feet. The holdfasts shown here anchor the plants and are in constant competition with other organisms for space on the rocks.

A common animal found on brown algae is another periwinkle--the Northern Yellow or Smooth Periwinkle, *Littorina obtusata*. This smooth, often yellow periwinkle blends in with the air bladders and often burrows directly into them.

(7) (Mussels)

One of the most common mid-intertidal animals, especially where waves crash on the shore, is the Blue Mussel, *Mytilus edulis*. Mussels are bivalved (two-shelled) mollusks related to clams. They attach themselves to rocks via byssal threads. Often forming dense beds by attaching to each other, they feed by pointing toward the flow of water. They filter water brought in through a siphon, pass it over their gills, and expel it through another siphon. If mussels become infected with an internal parasite, they can encase it with fine layers of mother-of-pearl, forming little pearls.

(8) (Dogwhelks)

The Atlantic Dogwhelk, *Nucella lapillus*, the shell of which comes in many colors, is the primary predator on mussels and barnacles in the middle zone. In areas of high wave-action, barnacles and mussels compete for space. In areas of low wave-action, dogwhelk predation on barnacles and mussels creates space for other plants and animals. The dogwhelk preys on mussels by drilling a hole in the shell with its sandbelt-like tongue, called a radula. It preys on barnacles by prying apart the top plates and sucking out the animal.

Many marine organisms, like barnacles and mussels, release their eggs or larvae into the water to be carried to other sites. Others, like the dogwhelk, lay eggs in rice-shaped capsules attached to the underside of rocks. The eggs hatch and the juvenile whelks live on the same section of rocky shore as their parents.

(9) (Middle, Lower Zones)

The next tidal zone on the shore is the lower or red algae zone. This zone is at the water's edge, and is dominated by a few species of red algae. The two most common types of red algae on the lower rocky shore are Irish Moss, *Chondrus crispus*, which has short, flat blades, and Tufted Red Weed,

(16) (Brittle Star)

Another member of the seastar group is the Daisy Brittle Star, *Ophiopholis aculeata*, which can be found only through intense exploration under rocks, in rock crannies and at the bases of kelp. The spiny arms are covered with a secreted sticky material. By wiping each arm across the mouth on the underside of its body, brittle stars ingest live or dead organisms. Brittle Stars also regenerate lost arms, if at least one arm remains.

(17) (Nudibranch)

Nudibranchs are shell-less snails, with gills and intestines on their backs. This Red-gilled Nudibranch, a *Coryphella* spp., lives in subtidal zones or in tidepools. It eats hydroids (relatives of jellyfish and anemone) which grow on kelp and under rock overhangs. The hydroids' stinging cells are deposited in projections on their back called cerata, protecting themselves from fish predators.

(18) (Sea Anemone)

Sea Anemones are common in the subtidal, but can be found in deep tidepools. These jellyfish relatives attach to rocks and pier pilings, but they do move around very slowly. Their crown of tentacles captures plankton and small fish and protects them from predation. Their larvae are like jellyfish until they settle on the bottom as a tiny anemone. They can also reproduce by leaving behind bits of their basal disk, which grow into new individuals.

(19) (Herring Gull)

Birds are at the top of the rocky shore food web, consuming a variety of organisms from intertidal and subtidal zones. The most common rocky shore bird predator is the Herring Gull, *Larus argentatus*. This gray and white gull breeds on offshore islands, and spends most of the year on the coast, feeding on fish and intertidal animals such as urchins, crabs, seastars, whelks, and mussels.

(20) (Tidepooling)

Tidepooling is an art--finding organisms that are not obvious in intertidal areas. The shore at Odiorne Point is typical of the New England rocky shore, and most organisms can be found year-round if you look closely. Wet feet, wet knees and wrinkled fingers don't guarantee finding all of the organisms shown, but the harder you look, the more you will find!

To project these slides, place them in the carousel with the numbers in the upper left hand corner of the side facing the screen. This slideshow is assembled and copyrighted by the Seacoast Science Center, Rye, NH, 1992.

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Tom Arter: 1

Gigartina stellata, which has warty bumps on the blades. Organisms common to this tidal zone require longer periods of time under water than those in the middle or upper zones.

(10) (Limpets, Crustose **Algae)**

The Tortoise-Shell Limpet, *Acmaea testudinalis,* is another snail which has adapted to life in areas of high wave-action. This snail is flat and oval-shaped, clamping down to rocks in tidepools during low tides. When the tide rises, the snail travels less than a meter away and eats microscopic and encrusting algae. After foraging , it clamps down to its home scar--an area of the rock which it has worn down and into which it fits perfectly.

(11) (Green Crab)

The Green Crab, *Carcinus maenas,* is the common crab found in middle and low zones. Young crabs are intertidal foragers in rocky and sandy habitats, while the adults are largely subtidal, living below the low water mark. Green Crabs, like all crustaceans, have exoskeletons and molt regularly in order to grow. Lost limbs can be regenerated during molting. Green Crabs eat mussels and snails, and are eaten by gulls, ducks, fish and cormorants. The female deposits her eggs between her body and folded-under abdomen and carries them around until they hatch.

(12) (Sea Urchin)

The Green Sea Urchin, *Strongylocentrotus droebachiensis,* is a common lower zone animal which eats algae, particularly kelp. Urchins are echinoderms, related to sea stars and sand dollars and often travel in large groups. They have five paired rows of spines for defense and five paired rows of tube feet. They use these tube feet as suction cups for locomotion and to pull things on top of themselves for camouflage. They are eaten by lobsters, fish and gulls, and by humans who harvest them for their eggs.

(13) (Sponge)

Sponges are primitive animals that attach to the underside of large boulders and other shady, moist areas in the lower zone. This Bread Crumb Sponge, *Halichondria panicea,* gets its green color from microscopic algae living in the sponge itself. Sponges are filter-feeders, taking in water through pores to gather plankton, bacteria and oxygen.

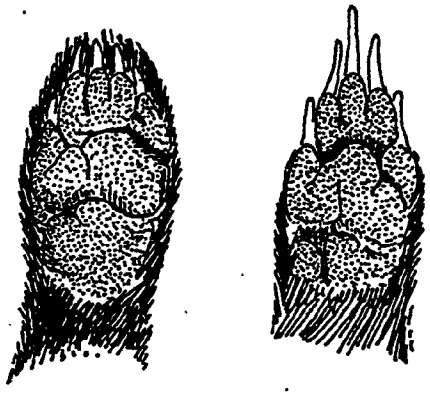
(14) (Blood Star)

The Blood Star, *Henricia sanguinolenta,* is a smaller sea star, never getting more than 3" across. It is also related to urchins and sand dollars. These bright red to purple-red sea stars have slender arms, and are often found near sponges, their favorite food. They can also sweep small bits of food down the underside of their arms into their mouth.

(15) (Seastar)

The Northern Sea Star, *Asterias vulgaris,* is common along our rocky coasts in lower and subtidal zones. This large (to 40 cm) sea star moves about by using long rows of tubefeet on the underside of each arm. It is a major predator on mussels, which it eats by prying apart the shells with its tube feet, lowering its stomach inside and digesting the mussel. Sea stars can grow back arms which they lose, provided they retain half of their central disk.

Hog-nosed Skunk (foreground) and Striped Skunk



Hind foot and forefoot of Striped Skunk, ⅔ size

Cottontail

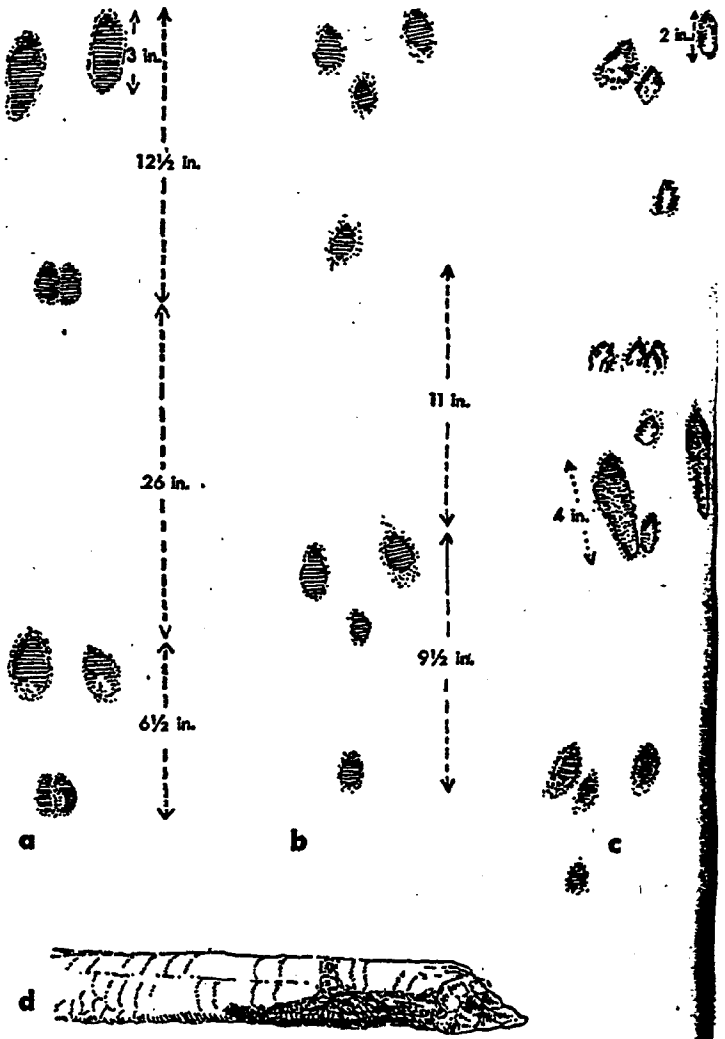
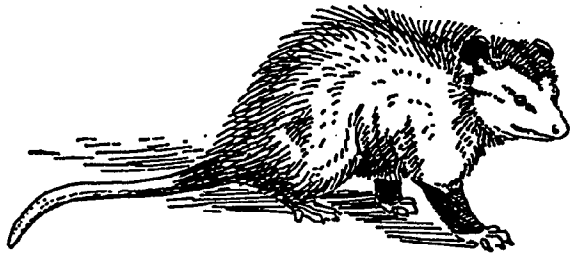
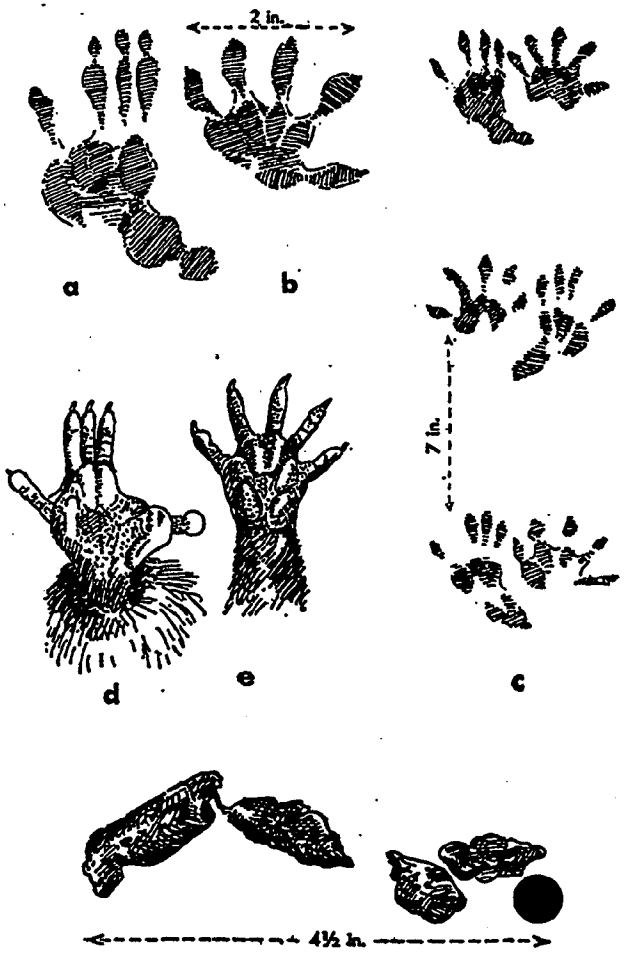


Fig. 126 Cottontail tracks in ½ in. of snow (Washington, D.C.).

Raccoon



Opossum



Domestic Cat, covering dung

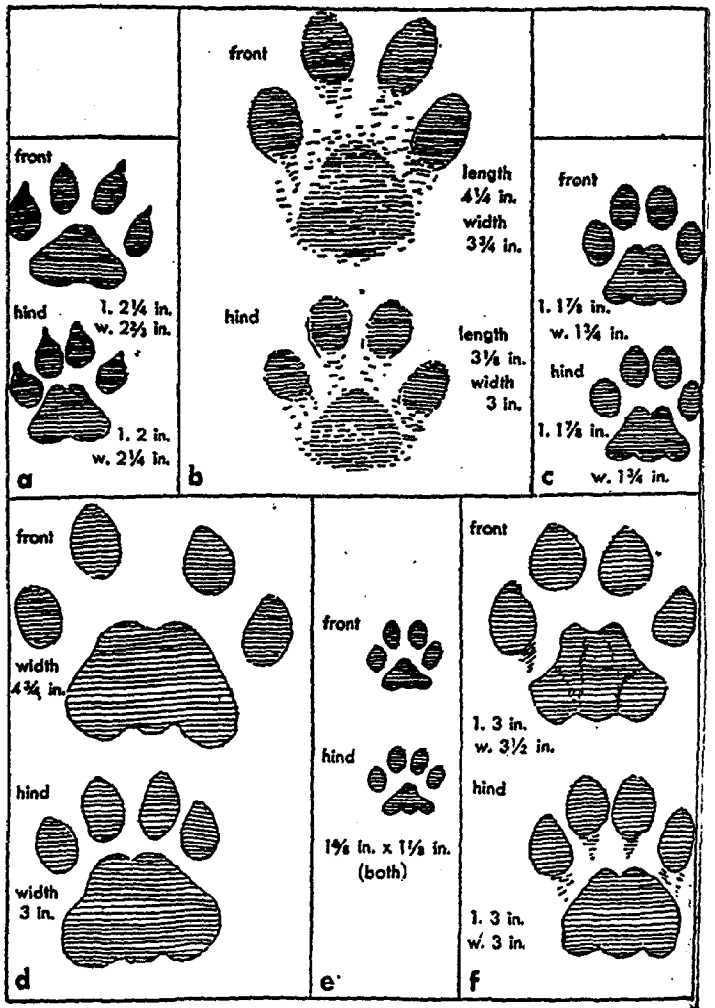
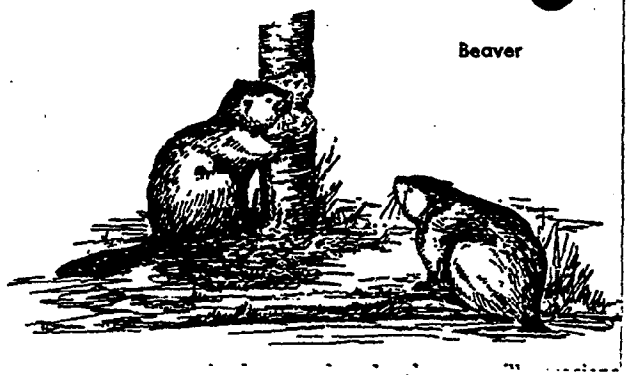
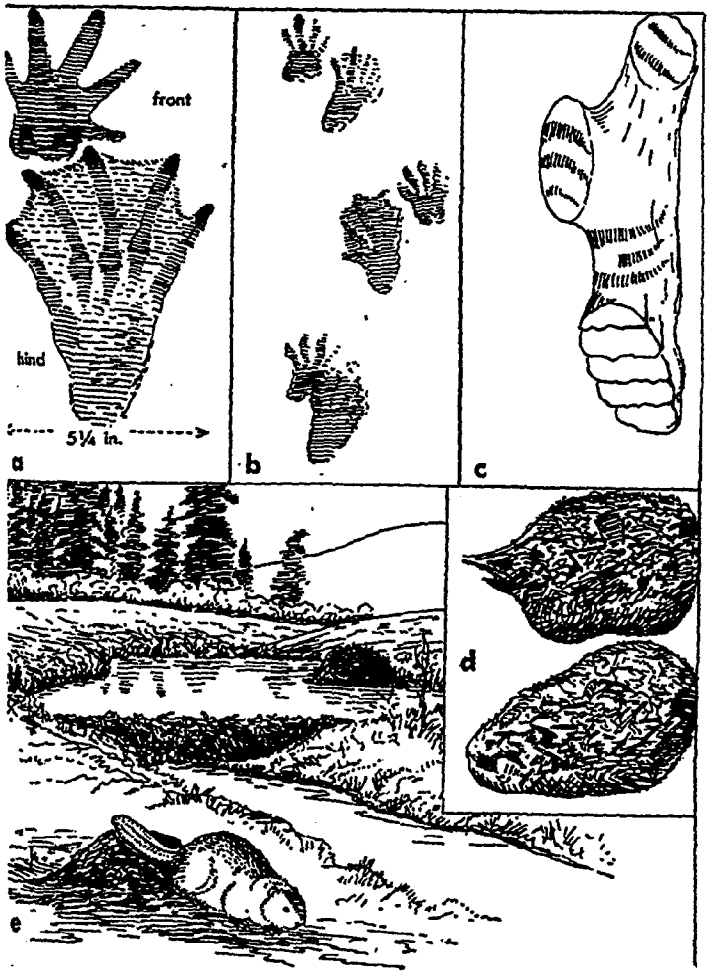


Fig. 52 Cat tracks.

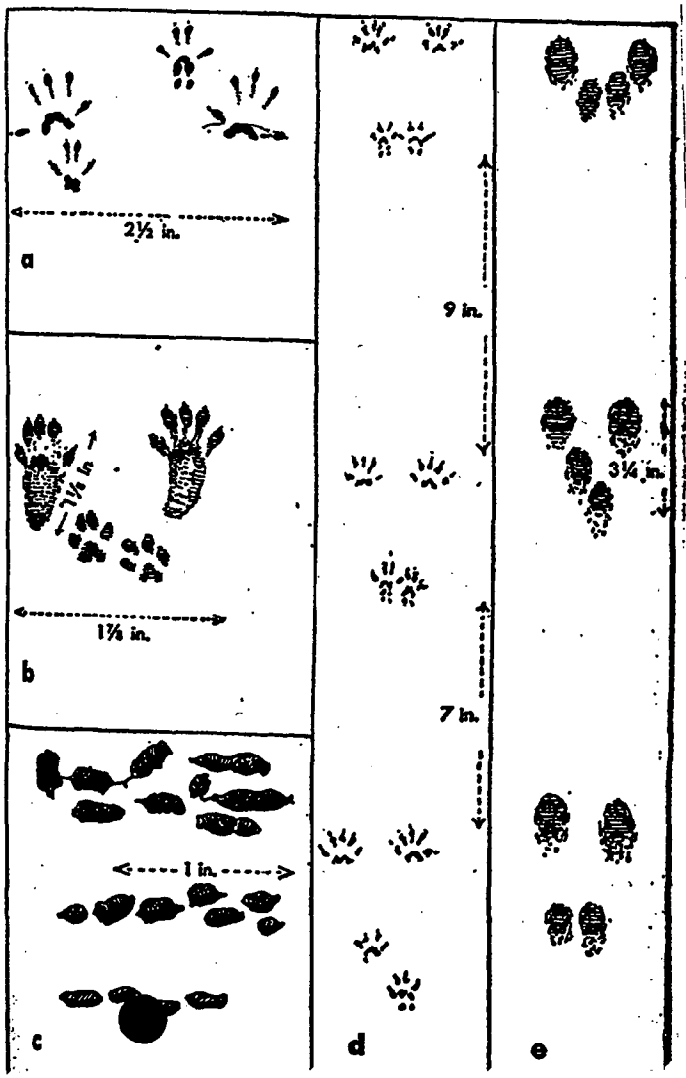
a. Ocelot. b. Canada lynx. c. Bobcat. d. Jaguar.
e. House cat. f. Puma.

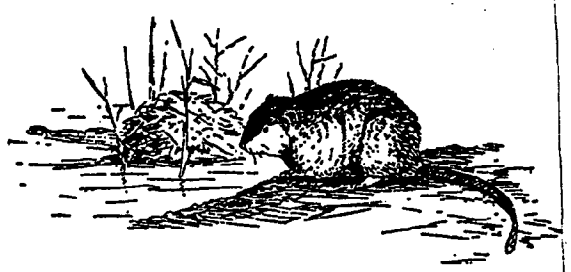


BEAVER

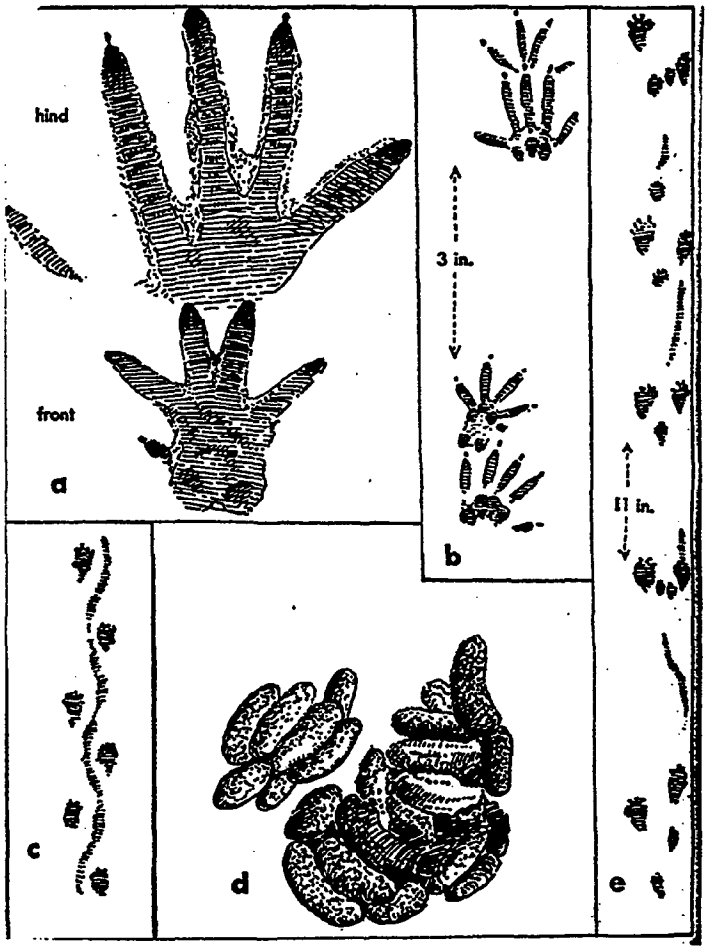


Chipmunk





Muskrat



MUSKRAT

Red Fox

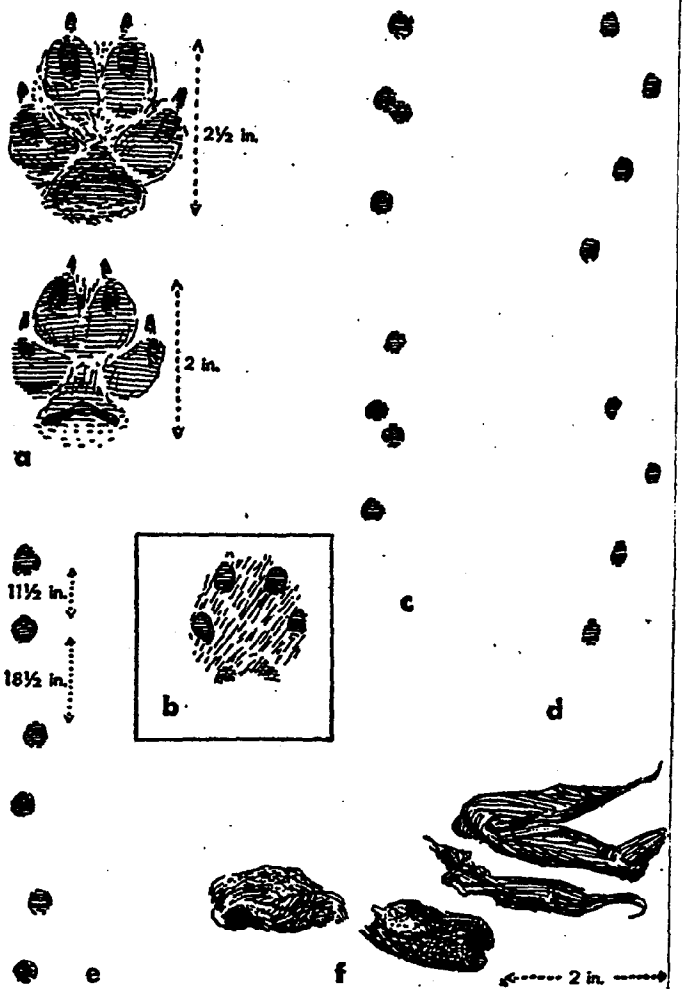


Fig. 49 Red fox tracks and scats.

a. T[illegible] in mud. Upper, front; lower, hind (Alaska Peninsula).
b. Track on 9mm sand (Alaska). c. Loping gait.

Dog

Dogs are of such great variety of size and shape that it would be hopeless to characterize the tracks of all of them. In Figure 42 are shown the tracks of the Eskimo dog, or Malemute, from Port

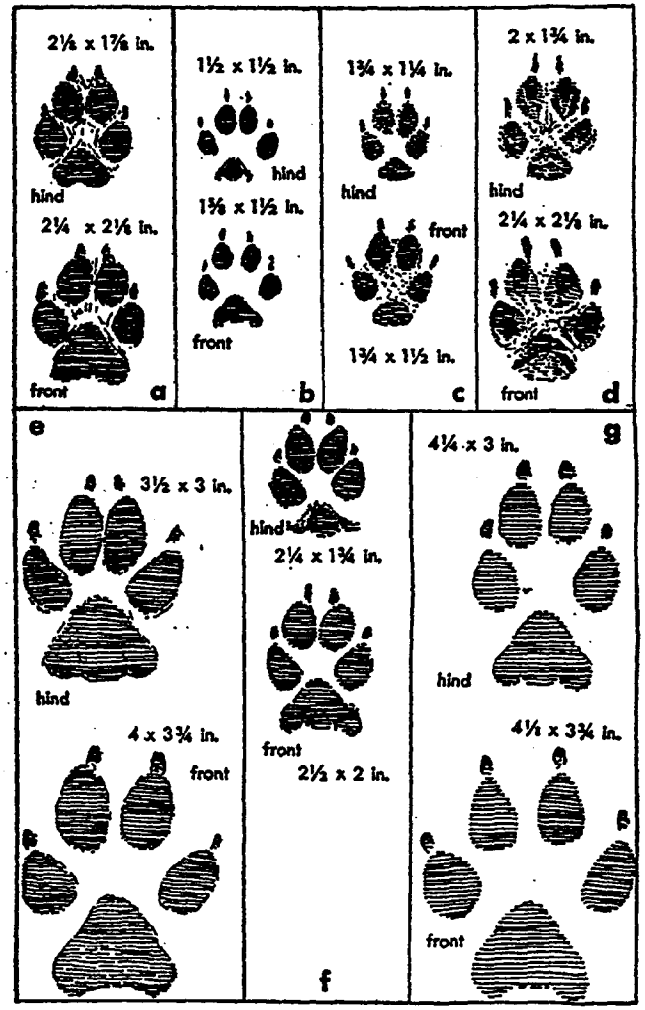
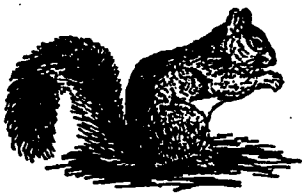


Fig. 40 Footprints of the dog family.

a. Arctic fox, in sand. b. Gray fox, in mud.
c. Kit fox, in snow. d. Red fox, in mud.
e. Eskimo dog, in mud. f. Coyote, in m[illegible]
g. Alaskan wolf, in mud.

Red Squirrel



Gray Squirrel and

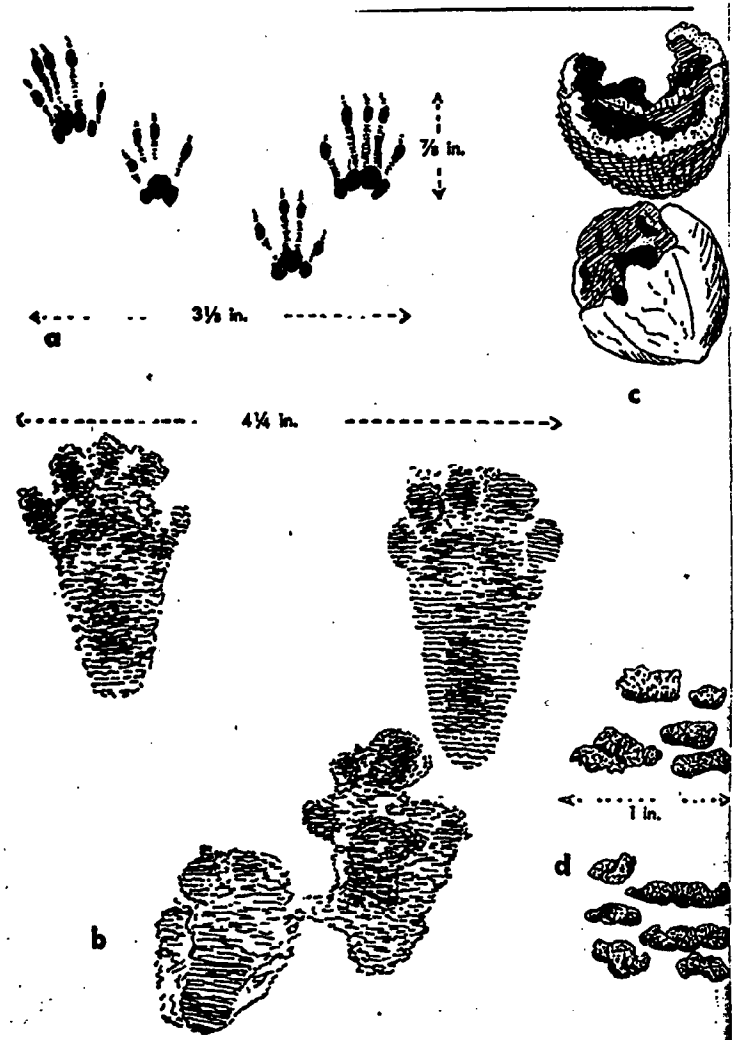
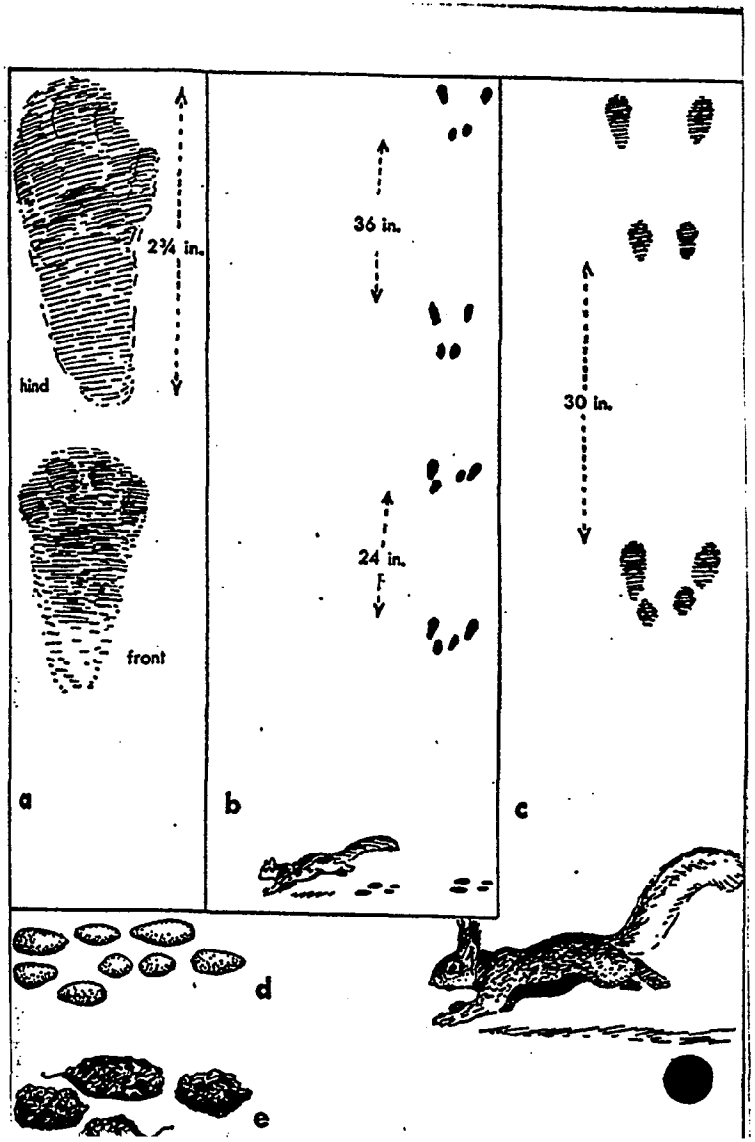
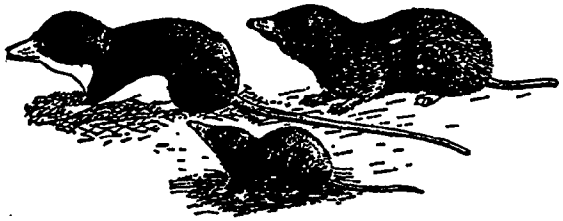


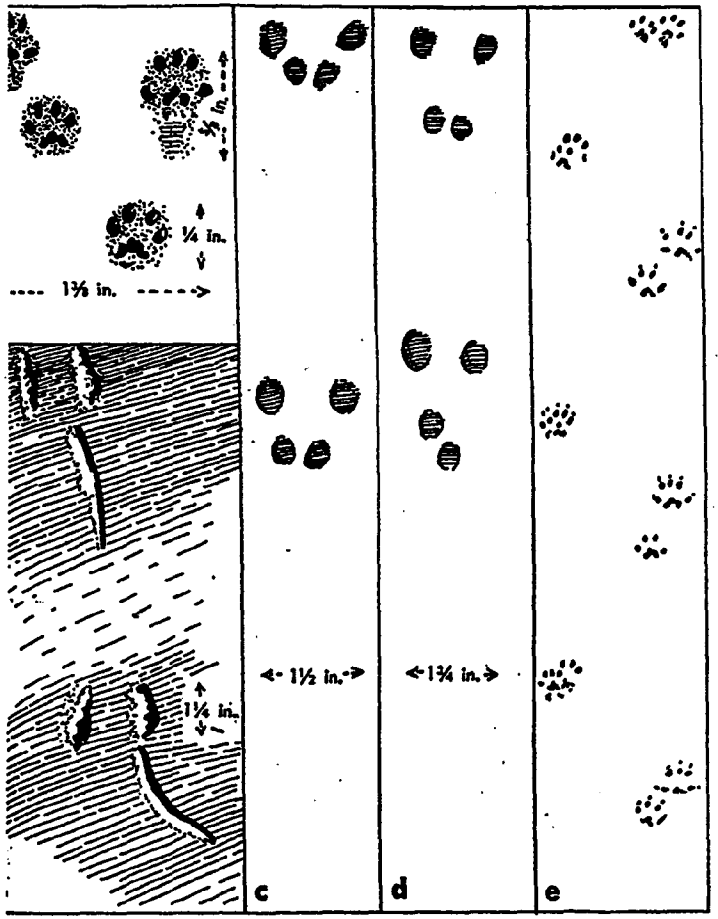
Fig. 74 Red squirrel sign.

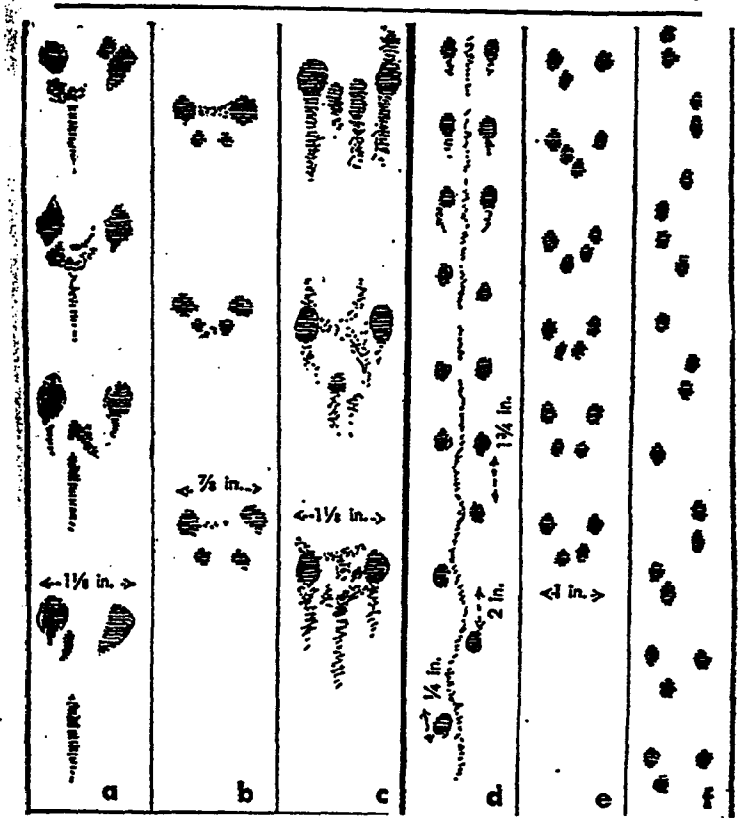


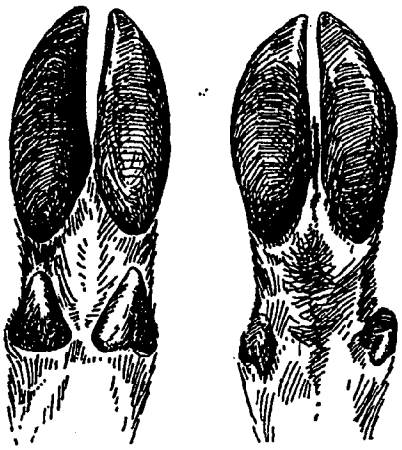
White-Footed Mouse, Deer Mouse



Water Shrew, Common Shrew, and Short-tailed Shrew







Left front and left hind feet of male White-tailed Deer

White-tailed Deer

White-tailed Deer

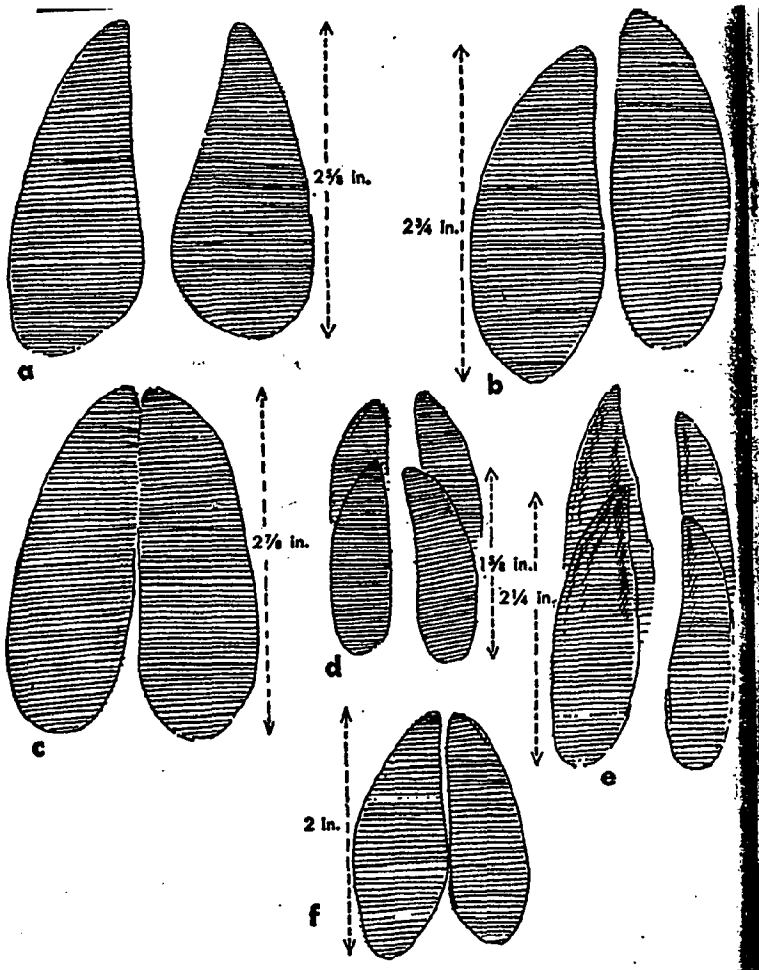


Fig. 133 White-tailed deer tracks, in mud, about ⅓ natural size.

a, b, c. Various tracks from Wichita Mts., Okla.
d. Fawn tracks from Michigan (July 7, 1934).
e. Tracks from northern Minnesota (1924).
f. Track of a small deer in Chisos Mts., Texas (March 1950).

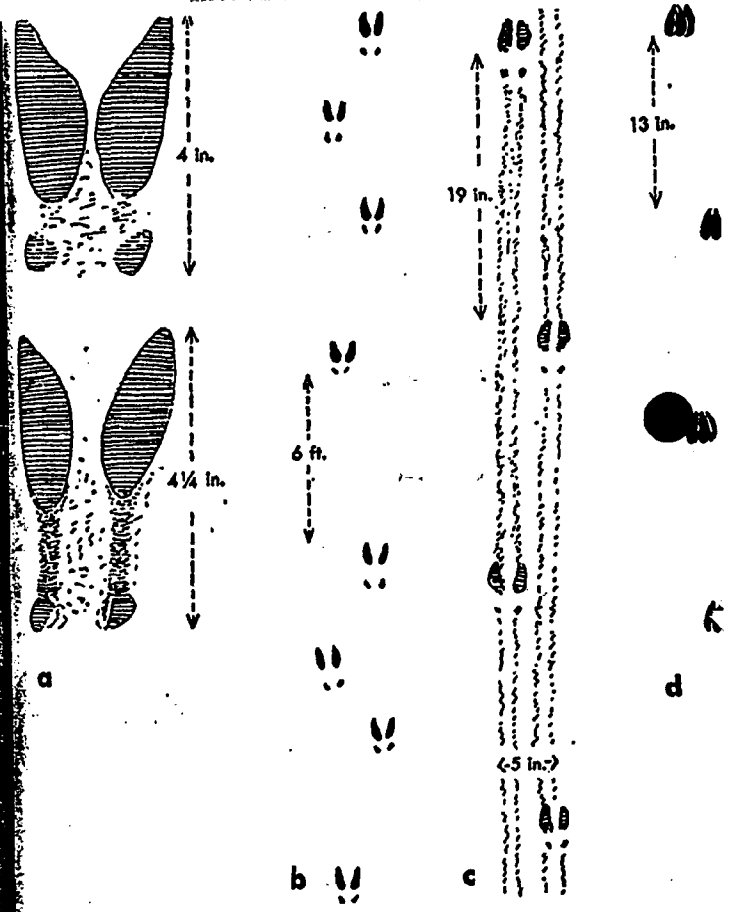


Fig. 134 Track patterns of white-tailed deer.

a. Leaping tracks, in mud, with dewclaws showing. In front track (upper) dewclaws are close to hoofs. In hind track (lower) dewclaws are farther from hoofs (Okla., 1935).
b. Galloping track pattern, in snow; hind tracks in front (Mich.).
c. Walking pattern in snow, showing drag marks of toes (Mich.).
d. Walking pattern of young deer, on dirt road, showing the traditional heart shape of footprint (Minn.).

This list is compiled from *Exploring Odiorne Point: A Guide to the Natural and Social History of Odiorne Point State Park* (published by the Friends of Odiorne Point, Rye, N.H. 1992), and covers the 330 acres that comprise Odiorne Point State Park.

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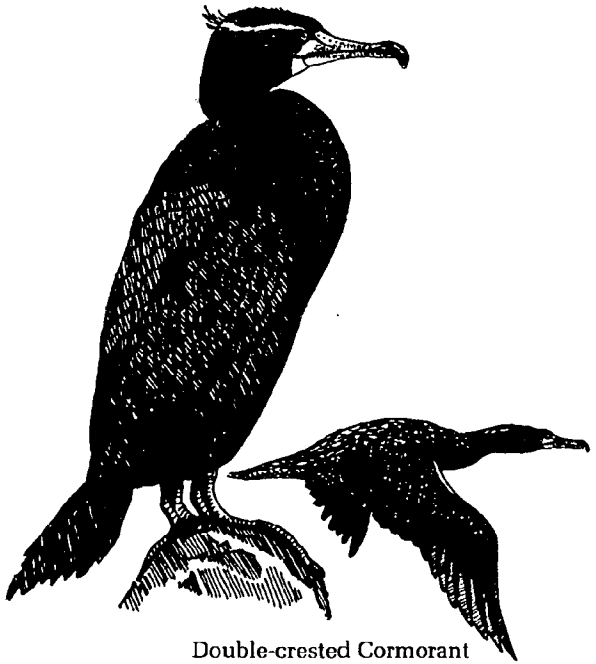
Species	Likelihood of Seeing
Didelphidae	
____Opossum (Didelphis marsupialis)	Possible
Soricidae	
____Short-tailed Shrew (Blarina brevicauda)	Certain
____Masked Shrew (Sorex cinereus)	Probable
____Smoky Shrew (Sorex fumeus)	Possible
Talpidae	
____Star-nosed Mole (Condylura cristata)	Probable
Vespertilionidae	
____Little Brown Bat (Myotis lucifugus)	Certain
____Big Brown Bat (Eptesicus fuscus)	Certain
____Keen's Myotis (Myotis keenii)	Rare
____Indiana Myotis (Myotis sodalis)	Rare
____Small-footed Myotis (Myotis subulatus)	Rare
____Silver-haired Bat (Lasionycteris noctivagans)	Rare
____Eastern Pipistrelle (Pipistrellus subflavus)	Rare
____Red Bat (Lasiurus borealis)	Rare
____Hoary Bat (Lasiurus cinereus)	Rare
Leporidae	
____N. E. Cottontail (Sylvilagus transitionalis)	Certain
____Eastern Cottontail (Sylvilagus floridanus)	Certain
Sciuridae	
____Eastern Chipmunk (Tamius striatus)	Certain
____Woodchuck (Marmota monax)	Certain
____Gray Squirrel (Sciurus carolinensis)	Certain
____Red Squirrel (Tamiasciurus hudsonicus)	Certain
____S. Flying Squirrel (Glaucomys volans)	Probable
____N. Flying Squirrel (Glaucomys sabrinus)	Probable
Castoridae	
____Beaver (Castor canadensis)	Possible
Cricetidae	
____White-footed Mouse (Peromyscus leucopus)	Certain
____Red-backed Vole (Clethrionomys gapperi)	Probable
____Meadow Vole (Microtus pennsylvanicus)	Certain
____Muskrat (Ondatra zibethicus)	Certain
Muridae	
____Norway Rat (Rattus norvegicus)	Certain
____House Mouse (Mus musculus)	Certain
Zapodidae	
____Meadow Jumping Mouse (Zapus hudsonicus)	Probable
Erethizontidae	
____Porcupine (Erethizon dorsatum)	Possible
Canidae	
____Red Fox (Vulpes fulva)	Certain
____Grey Fox (Urocyon cinereoargentatus)	Probable
Procyonidae	
____Raccoon (Procyon lotor)	Certain
Mustelidae	
____Fisher (Martes pennanti)	Probable
____Short-tailed Weasel (Mustela erminea)	Probable
____Long-tailed Weasel (Mustela frenata)	Probable
____Mink (Mustela vison)	Certain
____Striped Skunk (Mephitis mephitis)	Certain
Felidae	
____Bobcat (Lynx rufus)	Possible
Cervidae	
____White-tailed Deer (Odocoileus virginiana)	Certain

____Black-capped Chickadee	C	C	C	C
____Boreal Chickadee	AC	--	--	--
NUTHATCHES				
____Red-breasted Nuthatch	U	U	O	C
____White-breasted Nuthatch	C	C	U	C
CREEPERS, WRENS				
____Brown Creeper	O	U	U	U
____Carolina Wren	AC	--	--	--
____House Wren	--	C	U	O
____Winter Wren	--	U	--	U
KINGLETS				
____Golden-crowned Kinglet	C	U	--	U
____Ruby-crowned Kinglet	--	C	--	U
GNATCATCHERS				
____Blue-gray Gnatcatcher	--	O	--	O
WHEATEARS, THRUSHES				
____Northern Wheatear	--	--	--	AC
____Eastern Bluebird	--	R	--	R
____Veery	--	U	--	U
____Swainson's Thrush	--	O	--	O
____Hermit Thrush	--	O	--	U
____Wood Thrush	--	C	C	U
____American Robin	O	A	C	A
MIMICS				
____Gray Catbird	--	C	C	U
____Northern Mockingbird	C	C	C	C
____Brown Thrasher	--	U	U	U
PIPITS				
____Water Pipit	--	R	--	R
WAXWINGS, SHRIKES				
____Cedar Waxwing	O	C	C	C
____Northern Shrike	R	--	--	R
____Loggerhead Shrike	--	R	--	--
STARLING				
____European Starling	A	A	A	A
VIREOS, WARBLERS				
____Solitary Vireo	--	C	--	U
____Philadelphia Vireo	--	--	AC	O
____Red-eyed Vireo	--	C	C	U
____Blue-winged Warbler	--	--	--	AC
____Tennessee Warbler	--	U	--	U
____Orange-crowned Warbler	--	--	--	AC
____Nashville Warbler	--	U	O	U
____Northern Parula	--	C	--	U
____Yellow Warbler	--	C	C	O
____Chestnut-sided Warbler	--	C	U	U
____Magnolia Warbler	--	U	O	U
____Cape May Warbler	--	O	--	O
____Black-throated Blue Warbler	--	U	O	U
____Yellow-rumped Warbler	O	C	O	A
____Black-throated Green Warbler	--	C	O	C
____Blackburnian Warbler	--	O	--	O
____Pine Warbler	--	R	--	R
____Prairie Warbler	--	O	O	O
____Palm Warbler	--	C	--	C
____Bay-breasted Warbler	--	O	--	O
____Blackpoll Warbler	--	U	O	C
____Black-and-white Warbler	--	C	C	C
____American Redstart	--	C	C	C
____Ovenbird	--	U	U	O
____Northern Waterthrush	--	O	--	O
____Connecticut Warbler	--	--	--	R
____Mourning Warbler	--	R	--	R
____Common Yellowthroat	O	C	C	C
____Wilson's Warbler	--	U	--	U
____Canada Warbler	--	U	U	U
____Yellow-breasted Chat	--	--	--	R
TANAGERS, GROSBEAKS				
____Scarlet Tanager	--	U	O	U
____Northern Cardinal	U	U	U	U
____Rose-breasted Grosbeak	--	C	O	U
____Indigo Bunting	--	U	--	O
SPARROWS				
____Rufous-sided Towhee	R	C	U	U
____American Tree Sparrow	O	O	--	O
____Chipping Sparrow	--	C	C	C
____Field Sparrow	--	O	O	U
____Vesper Sparrow	--	R	--	R
____Lark Sparrow	--	--	--	AC
____Savannah Sparrow	R	C	U	C
____Sharp-tailed Sparrow	--	O	O	O
____Fox Sparrow	--	O	--	O
____Song Sparrow	U	A	A	C
____Lincoln's Sparrow	--	O	--	O
____Swamp Sparrow	O	U	U	U
____White-throated Sparrow	O	C	--	A
____White-crowned Sparrow	R	--	--	U
____Dark-eyed Junco	O	U	--	U
____Lapland Longspur	R	--	--	R
____Snow Bunting	O	R	--	R
BLACKBIRDS, FINCHES				
____Bobolink	--	O	--	U
____Red-winged Blackbird	O	C	C	C
____Eastern Meadowlark	--	O	O	O
____Rusty Blackbird	--	R	--	R
____Common Grackle	O	C	C	C
____Brown-headed Cowbird	O	U	U	U
____Orchard Oriole	--	AC	--	--
____Northern Oriole	--	U	U	U
____Pine Grosbeak	R	--	--	--
____Purple Finch	O	U	--	U
____House Finch	C	A	C	C
____Red Crossbill	AC	--	--	--
____Common Redpoll	R	R	--	--
____Pine Siskin	U	U	--	U
____American Goldfinch	C	C	U	C
____Evening Grosbeak	O	O	--	--
____House Sparrow	U	U	U	U



Double-crested Cormorant
Iain C. MacLeod, 1989

Checklist of the Birds of Odiorne Point State Park

A publication of the Seacoast Science Center
P.O. Box 674, Rye, NH, 03870

recycled paper

This list is compiled from *Exploring Odiorne Point: A Guide to the Natural and Social History of Odiorne Point State Park* (published by the Friends of Odiorne Point, Rye, N.H. 1992), and covers the 300 acres that comprise Odiorne Point State Park. The following legend indicates the relative abundance of each species in each season.

A - **Abundant**: a species that is very numerous
C - **Common**: almost certain to be seen or heard
U - **Uncommon**: present, but not certainly seen
O - **Occassional**: seen only a few times/season
R - **Rare**: seen at intervals of two to five years
AC - **Accidental**: < five records for the species

W=Winter (Dec.-Feb.); **Sp=Spring** (Mar.-May)
Su=Summer (June-Aug.); **F=Fall** (Sept.-Oct.)

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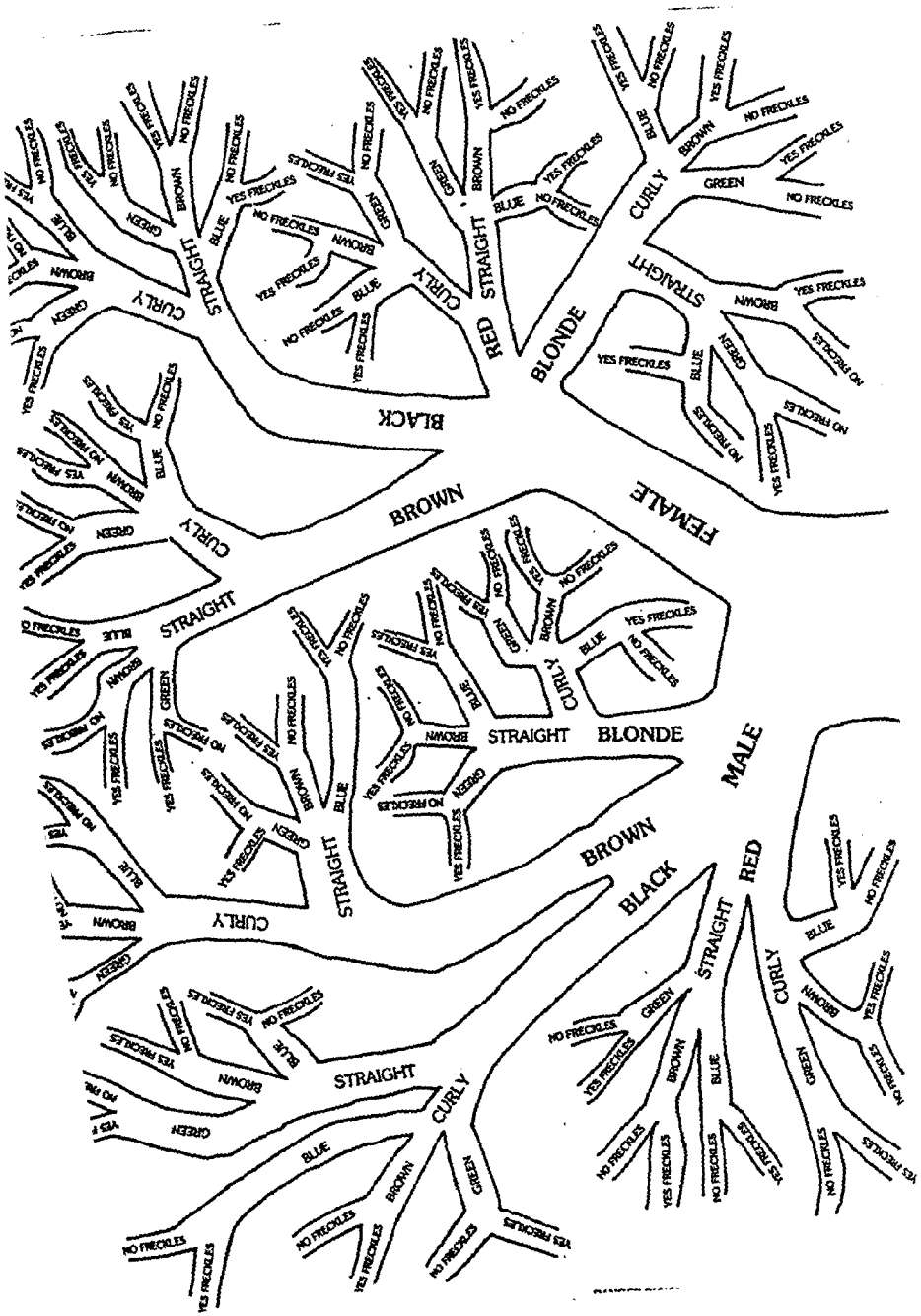
	W	Sp	Su	F
LOONS, GREBES				
____Red-throated Loon	U	--	--	U
____Common Loon	C	U	O	C
____Pied-billed Grebe	--	R	R	R
____Horned Grebe	C	--	--	U
____Red-necked Grebe	C	U	--	C
____Western Grebe	--	AC	--	--
STORM PETRELS				
____Wilson's Storm-Petrel	--	--	O	R
GANNETS, CORMORANTS				
____Northern Gannet	U	U	R	U
____Great Cormorant	A	C	--	C
____Double-crested Cormorant	--	C	A	C
BITTERNS, HERONS, EGRETS				
____American Bittern	--	O	--	AC
____Great Blue Heron	R	U	U	U
____Snowy Egret	--	U	U	U
____Little Blue Heron	--	--	O	O
____Green-backed Heron	--	O	U	U
____Black-crowned Night-Heron	--	O	U	O
IBISES				
____Glossy Ibis	--	U	U	U
GEESE, DUCKS				
____Snow Goose	--	R	--	R
____Brant	--	O	AC	O
____Canada Goose	O	C	R	A
____Wood Duck	--	O	--	O
____Green-winged Teal	--	O	--	O
____American Black Duck	O	U	U	U
____Mallard	U	C	C	U
____Northern Pintail	--	O	--	O
____Blue-winged Teal	--	O	--	O
____Redhead	--	R	--	--
____Common Eider	C	U	O	C
____Oldsquaw	C	U	--	C
____Black Scoter	O	R	--	O
____Surf Scoter	U	O	--	U
____White-winged Scoter	C	O	--	C
____Common Goldeneye	C	U	--	C
____Bufflehead	C	U	--	C
____Hooded Merganser	R	O	--	O
____Common Merganser	--	O	--	O
____Red-breasted Merganser	C	C	O	C
HAWKS, FALCONS				
____Osprey	--	O	--	U
____Northern Harrier	--	O	--	O
____Sharp-shinned Hawk	--	O	R	C
____Cooper's Hawk	--	R	--	O
____Red-shouldered Hawk	R	O	--	O
____Broad-winged Hawk	--	U	--	U
____Red-tailed Hawk	U	U	U	U
____Rough-legged Hawk	U	O	--	O
____American Kestrel	R	U	U	C
____Merlin	R	O	--	U
____Peregrine Falcon	R	O	--	O
PHEASANTS, GROUSE, RAILS				
____Ring-necked Pheasant	U	U	U	U
____Ruffed Grouse	U	U	U	U
____Virginia Rail	--	U	--	U
PLOVERS, SANDPIPERS				
____Black-bellied Plover	R	C	U	C
____Lesser Golden-Plover	--	--	--	R
____Semipalmated Plover	--	C	C	C
____Killdeer	R	C	C	C
____Greater Yellowlegs	--	C	C	C
____Lesser Yellowlegs	--	U	C	C
____Solitary Sandpiper	--	O	O	O
____Willet	--	AC	--	AC
____Spotted Sandpiper	--	C	C	C
____Whimbrel	--	O	O	O
____Hudsonian Godwit	--	--	R	R
____Marbled Godwit	--	--	--	AC
____Ruddy Turnstone	R	U	C	C
____Semipalmated Sandpiper	--	O	C	C
____Least Sandpiper	--	U	C	U
____Pectoral Sandpiper	--	--	--	AC
____Purple Sandpiper	C	C	R	U
____Short-billed Dowitcher	--	O	C	U
____Dunlin	--	--	--	AC
____Common Snipe	--	C	--	U
____American Woodcock	--	U	--	U
GULLS, TERNS, ALCIDS				
____Laughing Gull	--	O	O	O
____Bonaparte's Gull	C	C	O	C
____Ring-billed Gull	C	C	C	C
____Herring Gull	A	A	A	A
____Great Black-backed Gull	A	A	A	A
____Black-legged Kittiwake	O	O	--	O
____Common Tern	--	C	C	C
____Dovekie	AC	R	--	R
____Thick-billed Murre	R	--	--	AC
DOVES, CUCKOOS				
____Rock Dove	C	C	C	C
____Mourning Dove	U	C	C	C
____Black-billed Cuckoo	--	O	--	O
____Yellow-billed Cuckoo	--	--	--	R
OWLS, GOATSUCKERS				
____Eastern Screech-Owl	AC	--	--	--
____Snowy Owl	R	--	--	--
____Short-eared Owl	--	R	--	R
____Northern Saw-whet Owl	AC	--	--	--
____Common Nighthawk	--	--	U	O
____Whip-poor-will	--	AC	--	--
SWIFTS, HUMMINGBIRDS				
____Chimney Swift	--	C	C	C
____Ruby-throated Hummingbird	--	O	O	O
KINGFISHERS				
____Belted Kingfisher	R	C	C	C
WOODPECKERS				
____Red-headed Woodpecker	--	--	--	AC
____Yellow-bellied Sapsucker	--	O	--	O
____Downy Woodpecker	C	C	C	C
____Hairy Woodpecker	C	C	C	C
____Northern Flicker	AC	C	C	C
FLYCATCHERS				
____Olive-sided Flycatcher	--	R	--	R
____Eastern Wood-Pewee	--	U	U	U
____Yellow-bellied Flycatcher	--	O	--	O
____Alder Flycatcher	--	O	--	O
____Willow Flycatcher	--	O	U	O
____Least Flycatcher	--	C	U	O
____Eastern Phoebe	--	C	C	C
____Great Crested Flycatcher	--	C	C	C
____Eastern Kingbird	--	C	C	C
LARKS, SWALLOWS				
____Horned Lark	O	O	--	O
____Tree Swallow	--	C	C	C
____No. Rough-winged Swallow	--	O	--	O
____Bank Swallow	--	O	--	O
____Cliff Swallow	--	U	U	U
____Barn Swallow	--	C	C	C
JAYS, CROWS, TITMICE				
____Blue Jay	C	C	C	C
____American Crow	C	C	C	C

What are some important uses trees have in our lives?

What are some ways we can help protect trees?

Sharing Nature 92

"The Lives of Leaves"



LEAF KEY

1. a. Leaves are shaped like needles	go to 2
b. Leaves are broad and flat	go to 3
2. a. Long needles growing in bundles of five	White Pine
b. Long needles growing in bundles of two	Red Pine
3. a. Leaves are opposite	go to 4
b. Leaves are alternate	go to 5
4. a. Leaves are simple	Mapple
b. Leaves are compound	Mt. Ash
5. a. Leaves are simple	go to 6
b. Leaves are compound	go to 11
6. a. Leaves are lobed	go to 7
b. Leaves are toothed	go to 8
7. a. Leaves entire, waves irregular	White Oak
b. Leaves have more than 7 lobes and very pointed	Red Oak
8. a. Leaves long and slender	go to 9
b. Leaves not long and slender	go to 10
9. a. Leaf tips drooping	Weeping Willow
b. Leaf has a broad mid-rib	Black Cherry
10. a. Leaf triangular with long tip	Grey Birch
b. Leaf oval shaped	Paper Birch
11. a. Leaflets toothed	Staghorn Sumac
b. Leaflets not toothed	Locust

Leaf Key

1. Leaves are shaped like needles ..... go to **2**
   Leaves are broad and flat ..... go to **3**

2. Long needles grow in bunches of five ..... WHITE PINE
   Needles are short, and grow singly along the branch ..... SITKA SPRUCE

3. Leaves are opposite ..... go to **4**
   Leaves are alternate ..... go to **5**

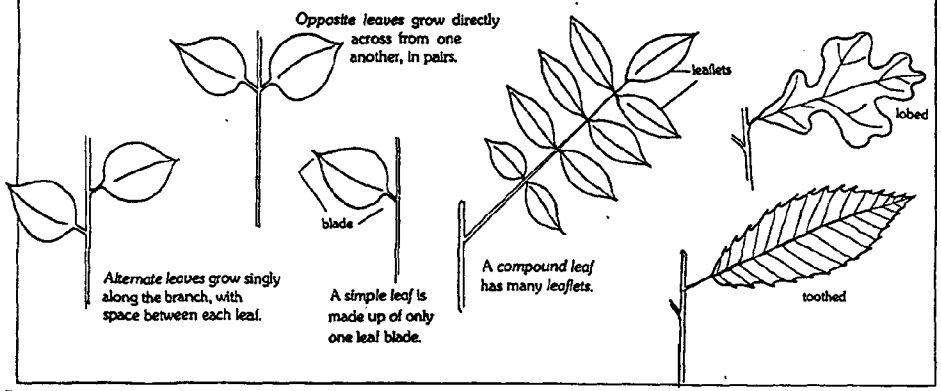
4. Leaves are simple ..... SILVER MAPLE
   Leaves are compound. Leaflets grow around the stem in a circle .....
   HORSE CHESTNUT

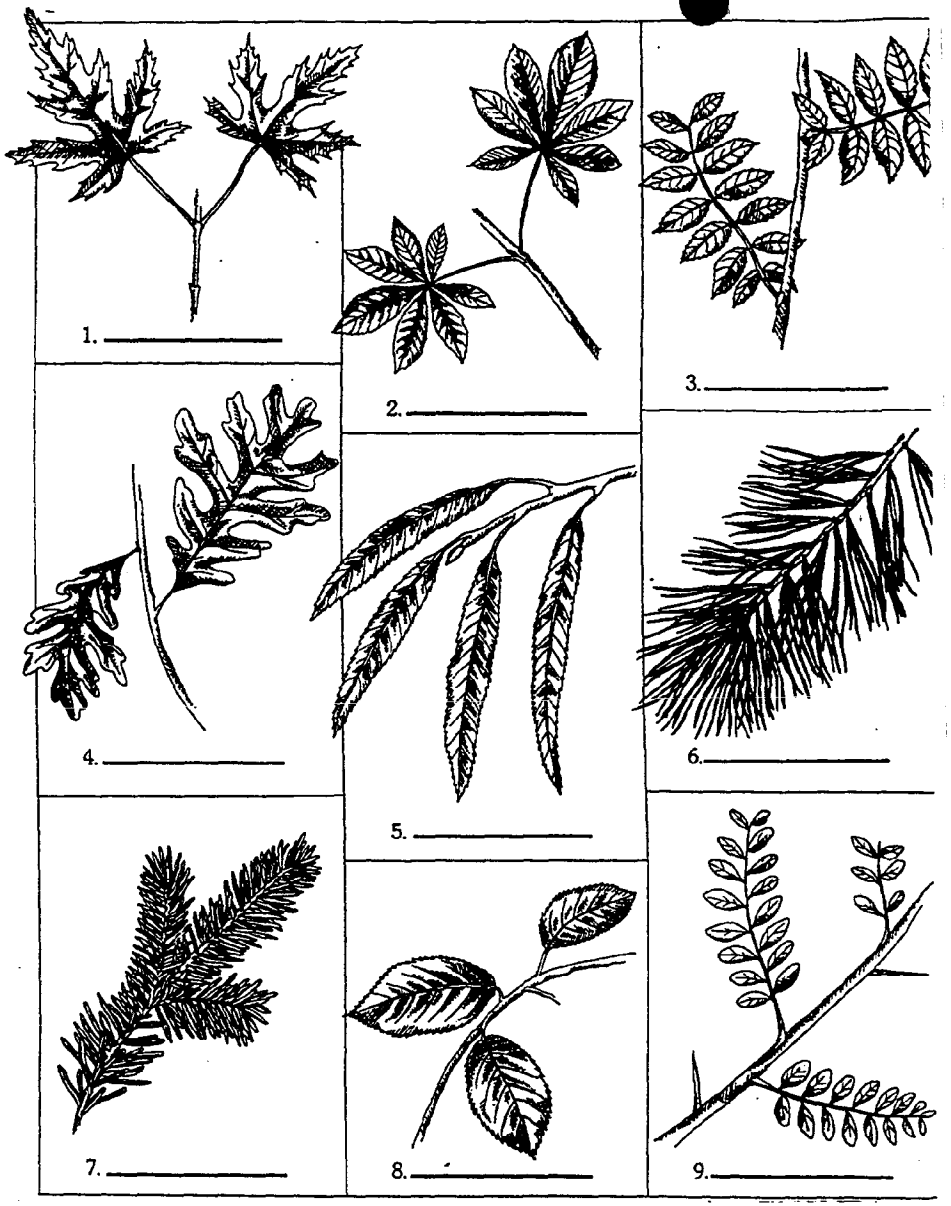
5. Leaves are simple ..... go to **6**
   Leaves are compound ..... go to **8**

6. Leaves are lobed ..... WHITE OAK
   Leaves are toothed ..... go to **7**

7. Leaves are long and slender ..... WEEPING WILLOW
   Leaves are rounded ..... CHOKE CHERRY

8. Branches have thorns ..... HONEY LOCUST
   Leaflets are toothed ..... BLACK WALNUT





Objective: To familiarize children with a particular tree.

Divide the children into small groups and give each a Meet a Tree questionnaire:

- In what sort of habitat or surroundings is your tree growing?
- Stand back from your tree. What is its shape?
- Does your tree have seeds, nuts, fruits, cones?
- Look at the bark. Notice color, texture, injuries. Make a bark rubbing.
- Can you find a leaf on or under the tree? Make a rubbing of it or tape one to your questionnaire.
- What kinds of plants are growing under or on your tree (lichens, mosses, fungi, vines, other)?
- Look for signs of animals, insects, and birds on your tree. Any holes leading under the tree? In the tree itself?
- Estimate the tree's height by having someone of known height stand next to the tree and estimate how many times that person's height the tree is. Estimate the circumference around the trunk.
- Is your tree healthy? How do you know?

TREE POEM

THE INSIDE STORY ON RINGS

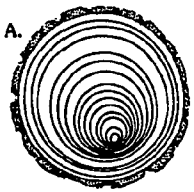
Here's some background information about how tree rings form and what conditions influence their growth:

What Are Tree Rings? If you look at a cross section of some tree trunks, you'll often see a distinct pattern of rings. Each ring is a layer of wood produced during the tree's growing season. As a tree begins growing in spring, the cambium (see page 6) produces a light-colored band of thin-walled cells called *earlywood*. As growth slows down in the summer, a darker ring of thick-walled cells called *latewood* is formed. Together, the earlywood and latewood form an *annual growth ring*. In most trees growing in temperate and northern climates, one growth ring is usually laid down each year. In the tropics, where the growing season often continues year round, trees may lay down more than one growth ring in one year. (Not all trees have clearly defined rings. For example, many tropical trees have ring patterns that are very hard to read.)

Good Years and Bad Years: The thicknesses and appearances of a tree's annual growth rings often vary from year to year, depending on growing conditions. During a good growing season, a wide ring is laid down. But during a poor growing season (with drought, an extremely long, cold winter, a spring frost, or some other factor hindering growth), the ring will be much narrower, indicating the tree was able to grow very little.

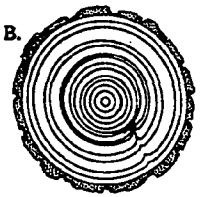
Other factors besides the weather can influence a tree's growth, including insect damage, diseases (viruses, bacteria, or fungi), fire, root damage, transplanting, and competition from other trees for sunlight, water, or nutrients. (See page 23 for the ways some of these factors influence how tree rings look.) Many things that cause a tree to be "stressed" will eventually show up in its growth ring pattern. If this stress occurs after the growing season, a narrow growth ring will probably be laid down in the next year's growth.

A.



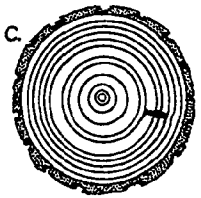
Cross Section A: The uneven growth shown in the rings could have been caused by a fallen tree leaning against the tree (picture 1). The tree grew more on one side than the other, and curved up around the fallen tree. This uneven ring pattern could also belong to a tree growing on a steep slope (picture 6).

B.



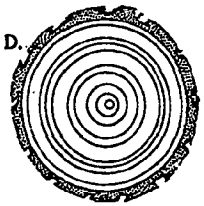
Cross Section B: The scarring in this cross section was caused by a forest fire during the tree's sixth growing season (picture 2).

C.



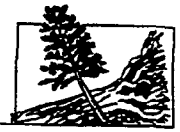
Cross Section C: The mark beginning in year six is all that's left of a branch that died and fell off (picture 7). Eventually the tree's trunk grew around the remains of the branch and covered it. (The branch could also have been broken or cut off.)

D.



Cross Section D: The narrow rings shown in this cross section could have been caused by several factors such as drought (picture 3), heavy insect damage (picture 4), or damage from construction (picture 5). If a tree lost all or most of its leaves because of an insect attack or drought, it would not be able to make food and would grow very little that year. And root damage from the construction of a house or sidewalk too close to the tree would reduce the water and minerals the roots could take up. Ask the children if they can think of other factors that might cause narrow growth rings. (disease, cold winter, a spring frost, transplanting, competition from other trees for sunlight and nutrients, and so on)

1. *Fallen tree*

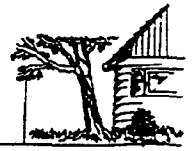


2. *Fire*

3. *Drought*

4. *Insect attack*

5. *Construction*



6. *Growing on slope*

7. *Dead branch*

Uplands Scavenger Hunt

Please find as many of the following as you can:

A mushroom or fungus
A tiny plant
Two different wildflowers
Berries (DO NOT EAT)
Sign of any bird
Sign of any mammal
Something you have never seen before
A leaf of a tree
Something non-living
A pine cone
Any type of bark

Uplands Scavenger Hunt

Please find as many of the following as you can:

A mushroom or fungus
A tiny plant
Two different wildflowers
Berries (DO NOT EAT)
Sign of any bird
Sign of any mammal
Something you have never seen before
A leaf of a tree
Something non-living
A pine cone
Any type of bark

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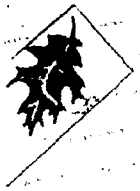
A leaf of a tree
Something non-living
A pine cone
Any type of bark

Spring Scavenger Hunt

1) Sign of a bird
2) Sign of an insect
3) Somebody's home
4) Sign of spring
5) 10 different colors!



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Pond program materials/activities

Lesson Plan
Worksheet
Frog Development Flipbook
Food Chain Activity
Field Guide Activity

SPRING VACATION CAMP
1993

POND DAY

I. 1 Hour outdoor exploration at the freshwater pond.

II. Begin with a short discussion about ponds and pond life. 10-15 min. total.
   A. Habitats
      1. Shoreline
      2. Water's surface
      3. Open water
      4. Bottom of pond
   B. Adaptations of organisms living in pond habitats. Examples of some plants and animals in the zones listed in (A.).
      1. Mammals, birds, amphibians, and reptiles. (i.e. muskrats, ducks, frogs, turtles, etc.)
      2. Water bugs, plants.
      3. Plankton, fish, newts, and amphibian eggs.
      4. Insect larvae. Plants.

III. Talk about rules and behavior.
   A. Stay together as a group, work in pairs.
   B. Handle plants and animals gently.
   C. Put creatures back in general area they were found.

IV. Gather supplies.
   A. Nets - 1 per 2 students.
   B. Scoopers - 1/2 gal. plastic milk containers with tops cut away, 1 per 2 students.
   C. Magnifying glasses - 1 per 1 or 2 students.
   D. Trays - 2-4 per whole group.

V. Walk to pond. Approx. 10 min. Talk about signs/sounds of spring on the way.

VI. Explore - scoop, net, look, and share. Approx. 30 min.

VII. Walk back to Center. Approx. 10 min.

AQUATIC CREATURE CARD

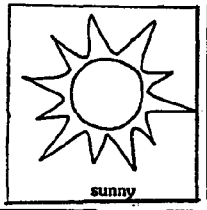
Draw your creature in
the space below.

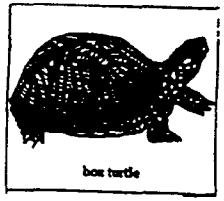
Answer the following questions:

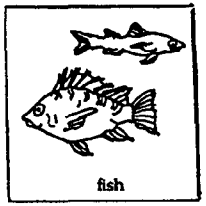
1. How big is it? _____
2. How does it eat? _____
   What does it eat? _____
   What eats it? _____
3. How does it move around? _____
4. How does it get air underwater? _____
5. What was it doing when you found it? _____
6. Does it live in, on or near the water (or in several places)? _____
7. How does it live through the winter? _____
8. Does it prefer the light or dark? _____
9. Is it a young stage of an animal or an adult? _____
   If young, what stage is it? _____
10. Give it a name and write it here. _____
    Now look up its common name and write it here. _____
    Write down anything else you notice about it. _____

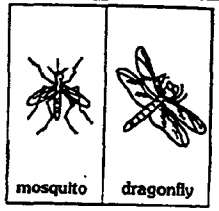
Sharing Nature 92

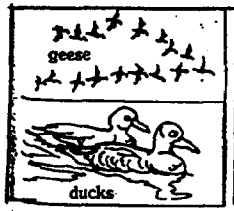
Pond Safari

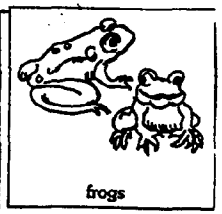


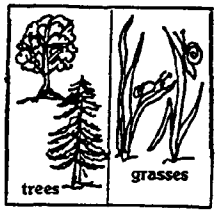


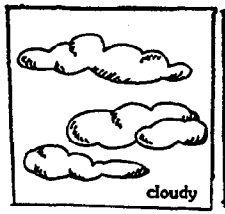


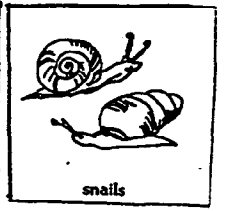












Pond Observations

1) What are some of the changes you noticed on your way out to the pond?

- Do you notice any changes in Temperature or Shade?
- What about the ground is it different in any way?
- What are some of the noises you hear at the pond?

2) Search for animals and signs of their presence (tracks, droppings, empty skins, egg cases, etc). What kinds of signs did you find?

3) Look for different kinds of plants growing in or near the pond. Look for moss, algae, floating and rooted plants. How are each of these adapted to life in and near the water?

4) Where does the water come from that enters the pond?

5) Where does the energy come from that feeds the plants and animals of the pond?

6) What do you think the bottom is mostly like? (check two)
silt and mud_____ sand_____rocks and gravel_____bedrock_____

7) Collect some animals and observe their behavior and where they were found. See if you can try to identify them.

8) From the critters that you have seen today, which one was the:
- Smallest?
- Largest?
- Funniest-looking?
- Most Colorful?
- Most Interesting?

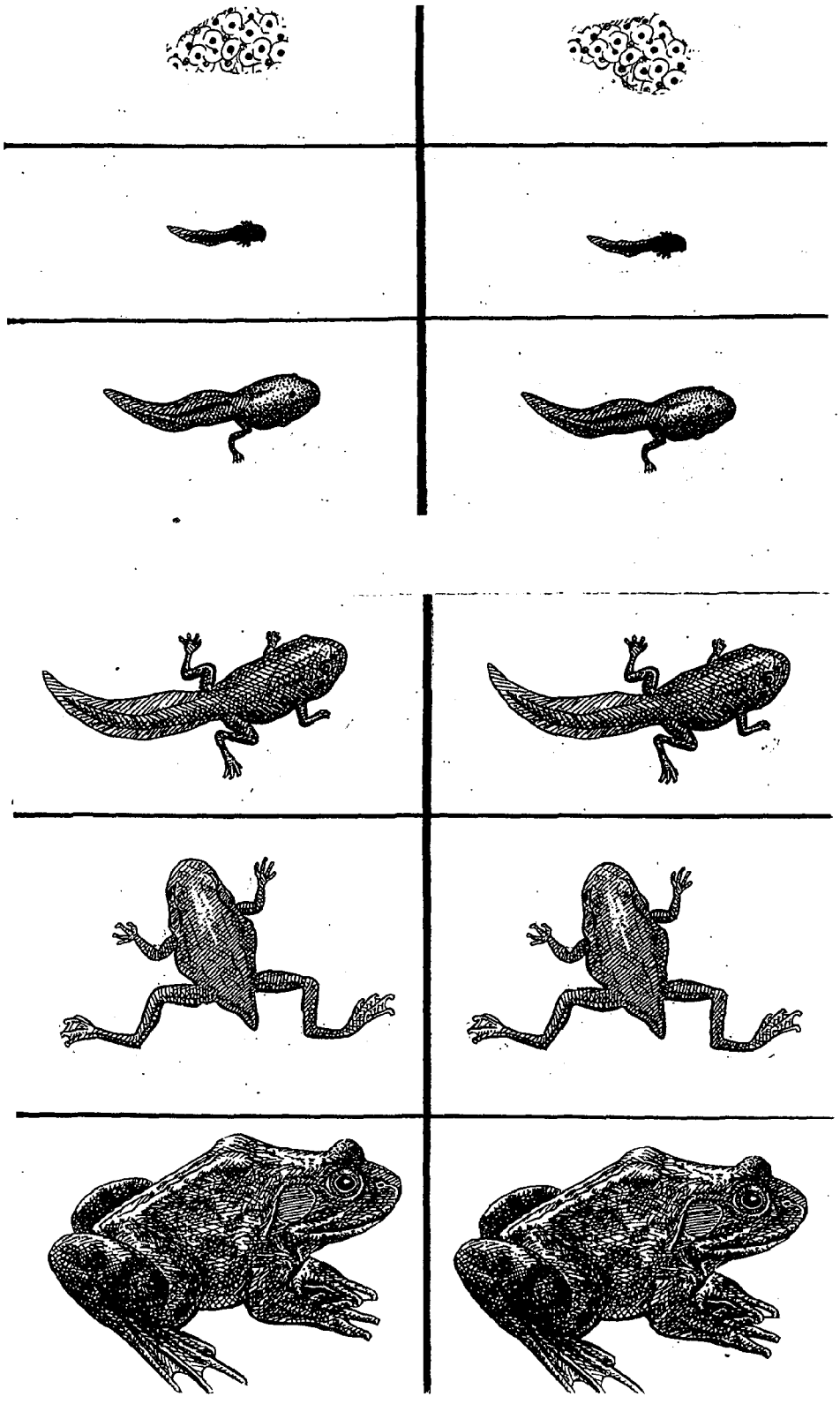
WORKSHEET I

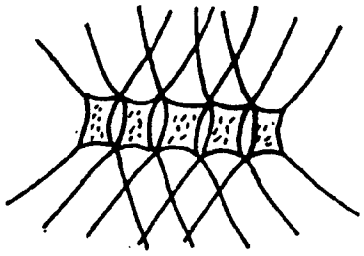
SKETCH OF ORGANISM	WHERE ORGANISM WAS FOUND

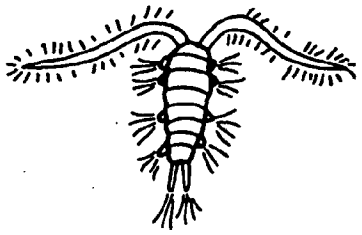
WORKSHEET II

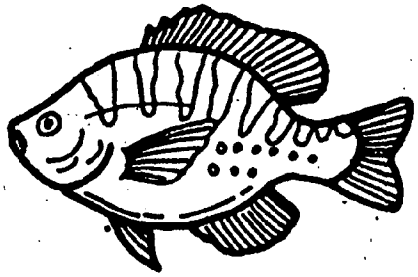
OBSERVATIONS	
WATER TEMPERATURE——	
AIR TEMPERATURE——	
pH ACIDITY vs. ALKALINITY——	

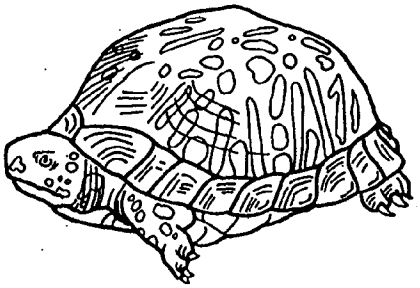
Sketch of Plankton:

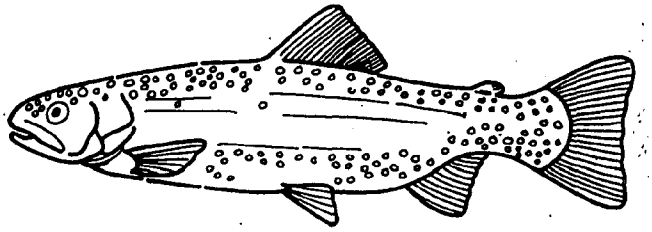


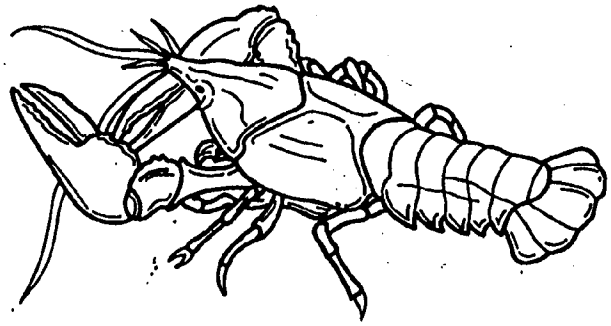


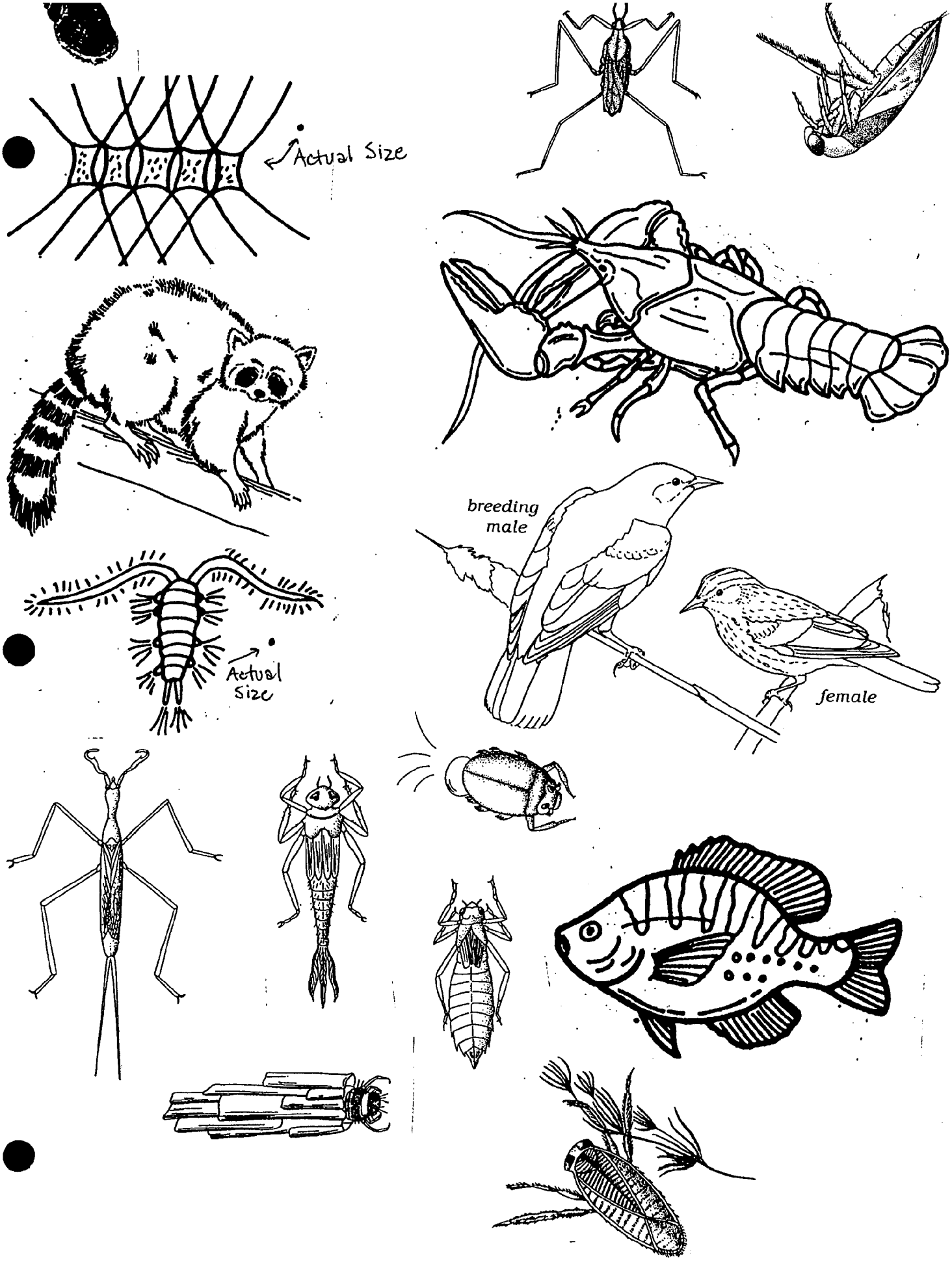











Actual Size
breeding male
female
Actual Size

Raccoon

Beaver

Painted turtle

Copepod

Water strider

Sunfish

Water scorpion

Caddisfly larva

Phytoplankton

Spring peeper

Whirligig Beetle

Backswimmer

Dragonfly nymph

Red-winged blackbird

Water boatman

Damselfly nymph

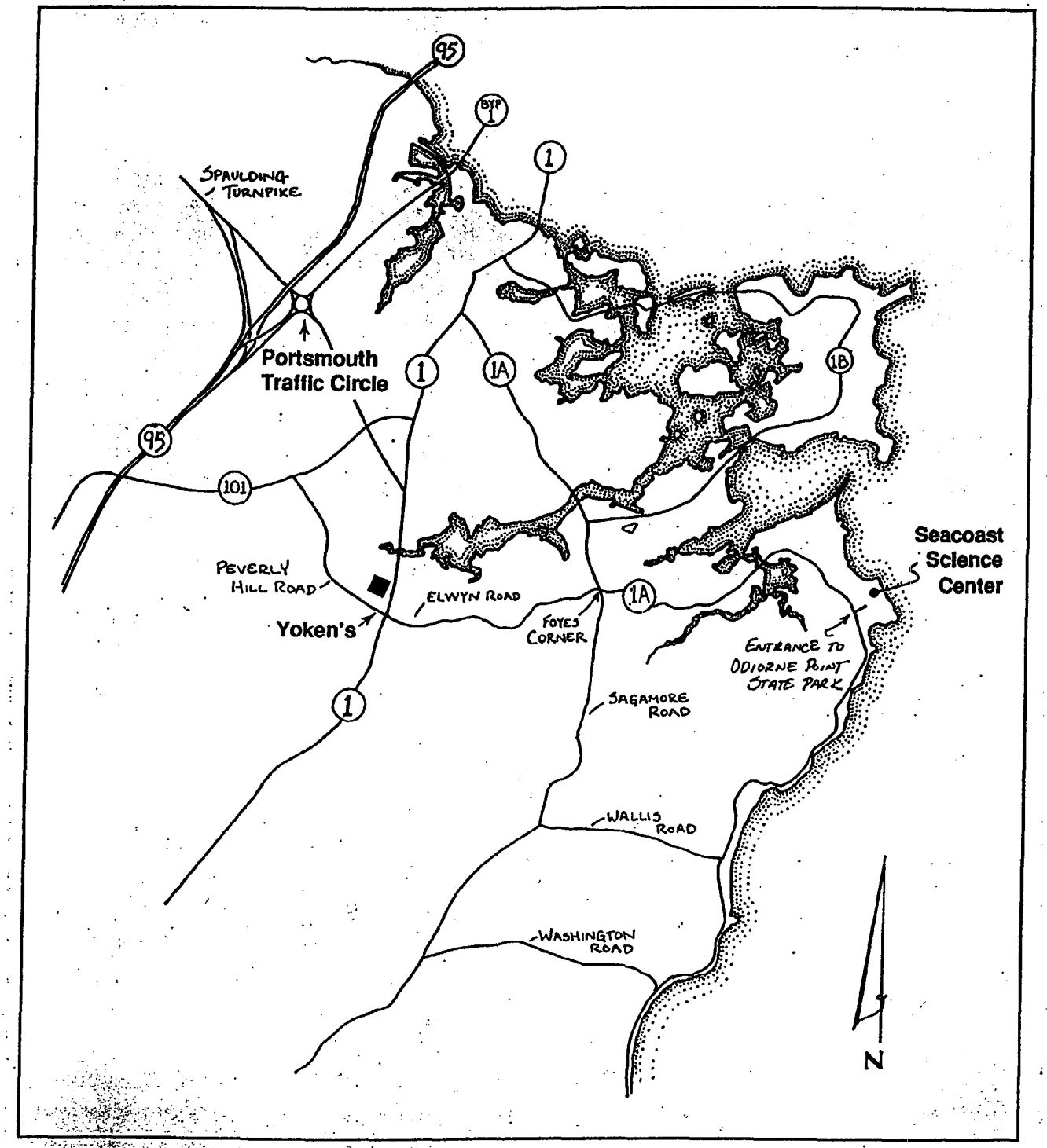
Wandering snail

Pre-trip planning sheets

Important

All chaperones and instructors must read the information in this packet *before* your Seacoast Science Center program.

Directions to the Seacoast Science Center



From the Portsmouth Traffic Circle

Take Route 1 South (follow signs to Yoken's Restaurant).

Go straight to 6th set of lights; Yoken's is on your right.

Turn left onto Elwyn Rd.; continue past Urban Forestry Center (on left), through residential section to next stop sign. (Foye's Corner Market will be on your right.)

Go straight at the stop sign onto 1A (Ocean Blvd.) Continue on 1A, over bridge, past Odiorne boat launching ramp (on left) to main park entrance on left.

Field Trip Logistics

Timing and logistics can make or break a trip. Plan your trip carefully from the time you leave school to the time you return. Make realistic estimates of time needed to travel to Odiorne Point State Park. If you are participating in a Seacoast Science Center (SSC) program, make certain to leave additional time for organizing your group prior to the starting time of your program.

Creating Small Groups of Students

Break your large class into smaller groups to facilitate rocky shore exploration. Well planned groups with good group dynamics will enhance the educational experience of the field trip; it is wise to strategically place students in these small groups. A ratio of one adult for every five students allows for satisfactory supervision and individual attention on the shore.

Special Needs

Despite the rough terrain of the rocky shore, it is possible to adapt tide pooling programs to meet the needs of challenged individuals. Please call the SSC for details.

Reservations

Reservations are required for all school groups planning to visit Odiorne Point State Park. Call 436-8043.

Fees

Parking fees may apply. Call (603) 436-8043 for reservations and information.

Trash

Odiorne Point State Park is a "carry in, carry out" park. Expect to carry your garbage back to your school or organization. Garbage cannot be disposed of at SSC.

What to Wear

Odiorne Point is likely to be cooler and breezier than most inland towns. The coast may also be experiencing rain or sleet while inland areas are sunny and mild! Please be certain all students come equipped with rain gear, regardless of the weather at home. Se diagram and list on page 4.

Lunch

In addition to the bag lunch every student and teacher should have, plan on bringing a healthy snack for your students to eat upon arrival at the park. This is especially important for groups participating in scheduled SSC programs since we will not break for lunch during your program. There is no snack stand at Odiorne Point State Park.

Bathrooms

Plan on using the park bathrooms. They are designed to handle a higher capacity of students and will take less time to use than the SSC's bathrooms (see map, inside back cover).

Collecting at Odiorne

No collecting of any kind may be done at Odiorne Point State Park. This includes living things (plants, animals) dead things (shells, sticks) and things that were never alive (rocks and sand). Pails for the viewing of animals stress and often kill animals; their use is strongly discouraged. All animals should be observed right where they were found and immediately put back in the same exact place.

We also follow a basic "Touch but be Gentle" policy while handling any animal or plant. Please introduce the "No Collecting" and the "Touch but be Gentle" policies to your group prior to your arrival to the park. Help us keep Odiorne a special place for all to enjoy.

Use of the SSC Nature Store

The Seacoast Science Center Nature Store has educational and marine related books, activities and gifts. It is very popular with students, teachers and parents. However, it can accommodate only small groups of students at once and leaders must supervise students at all times. One leader must be present for every 5 students.

Preparing for Your Trip

Successful field trips begin in the classroom well before the trip and continue beyond the field trip date with valuable reinforcer activities. The following are some suggestions to make your trip to the rocky shore safe, enjoyable, and of course, educational.

Check list: Pre-trip preparation

- ❑ Make all necessary reservations
- ❑ Plan all logistics for field trip (see page 2)
- ❑ Plan emergency procedures (see page 5)
- ❑ Familiarize yourself with all park regulations and emergency information.
- ❑ Begin teaching rocky shore ecology in classroom
- ❑ Recruit and designate chaperones
- ❑ Provide chaperones with all necessary information, including schedules and their expected role as a chaperone
- ❑ Send "What to Wear and Bring" list home to parents (page 4 diagram)
- ❑ Secure all necessary health forms and permission slips
- ❑ Make name tags for students, educators and chaperones
- ❑ Divide your class into smaller groups, assigning one or two chaperones for every five students

Check list: Day of Program

- ❑ For SSC program participants: send field trip coordinator (without students) to SSC for check-in
- ❑ For groups using the Park on their own, and want to visit the Brown Exhibit Hall: send leader (without students) to Center to schedule your time. Use of the Hall is on a space available basis.
- ❑ Take all students to Park bathroom facilities
- ❑ Remind all group leaders of rendezvous times and places
- ❑ Arrange students into pre-determined groups with chaperones

And Back at School...

- ❑ Reinforce field trip experience with related activities (see page 17)

Chaperone guidelines:

- ❑ Recruit chaperones early, and be sure they understand and feel comfortable about the prospects and expectations of the day.
- ❑ Have at least one chaperone for every five students.
- ❑ Have chaperones be responsible for one group of children for the entire day.
- ❑ Invite chaperones to attend any teacher workshops.
- ❑ Hold a special workshop for chaperones at your school. Include:

  A schedule, a description of the program, and directions.

  Run through all activities the chaperones will do with the class

  Safety tips and emergency procedures

  A list of what to wear and bring; remember — chaperones should be dressed appropriately and ready for action

Chaperones and Their Responsibilities

One of the most important components of any field trip is the parents and aides who accompany the class. Chaperones set the example for behavior. They help students focus and make the class visit to the rocky shore safe, fun, and educationally rewarding. Chaperones should be actively involved with the students and planned activities. They must dress for the outdoors and be prepared to go into the tide pools with the students. If chaperones hesitate to participate, students may follow this example and lose their focus and sense of exploration.

A major part of any outdoor program is discovery! Chaperones do not have to know the names of everything, nor do they need to have all the answers. Chaperones are there to help their students explore, and to ask questions. Saying "I don't know—how could we find out?" or "What do you think?" helps the students explore possibilities. In addition to the educational responsibilities, safety should be prominent in the chaperone's mind. Chaperones are expected to help the teachers with the discipline of students.

Dress in warm, comfortable clothing. We recommend dressing in layers that can be shed as the day warms up. Long pants, water-proof boots or old sneakers, mittens and a winter hat are necessary. Bathing suits at the rocky shore are never appropriate, and should be discouraged.

Tidepooling at Odiorne Point means wet feet. All students should have an extra pair of shoes and socks at a minimum. Many school groups have students bring an extra set of clothing in preparation for an accidental soaking! Students can change in the park's bathrooms after their program or field experience.

* Adapt this list for summer weather as necessary

Safety Sheet

For the safety of your students, you need to be prepared for any emergency situation. While prevention of injuries is always the goal, the following information will help to prepare you should an emergency arise.

Health Forms

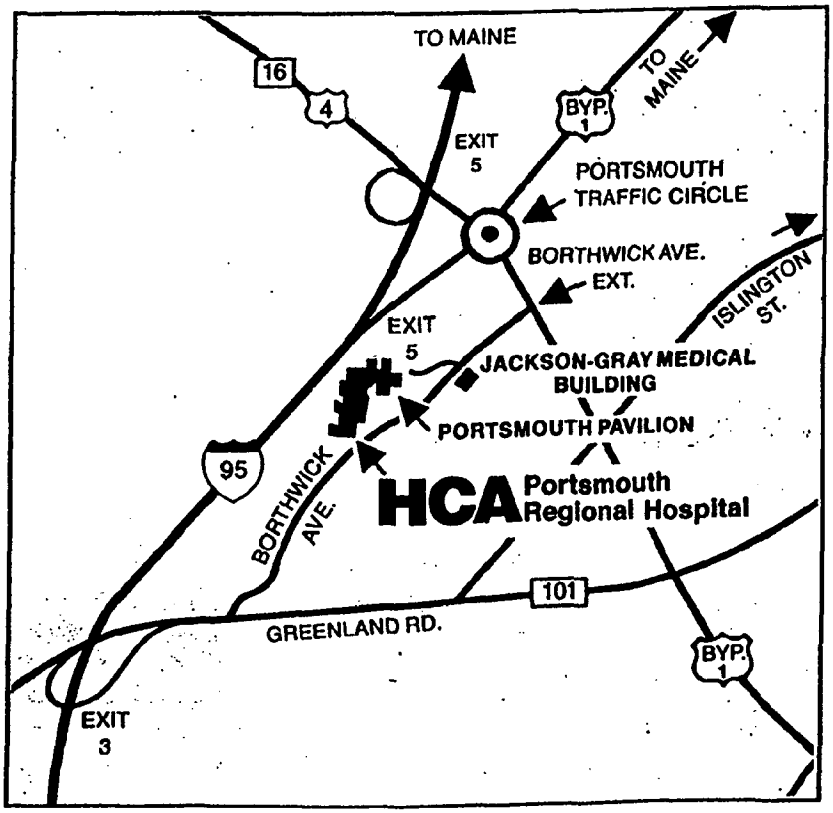
Health forms and permission slips for all students, parent aides and educators should accompany group leaders. Prior to coming to the shore, review the health forms and note any unusual allergies or health needs. The local hospital needs the information to treat injured persons. *The hospital must also be able to reach a parent or guardian by phone in order to treat a child. Phone numbers for all participants should be easily accessible.*

Emergency Vehicles

One group leader should plan on driving their own vehicle to the park rather than riding the school bus. In the past, leaders have found themselves unable to accompany injured students to the hospital as they had no way of returning to the park after arriving at the hospital with the ambulance.

First Aid

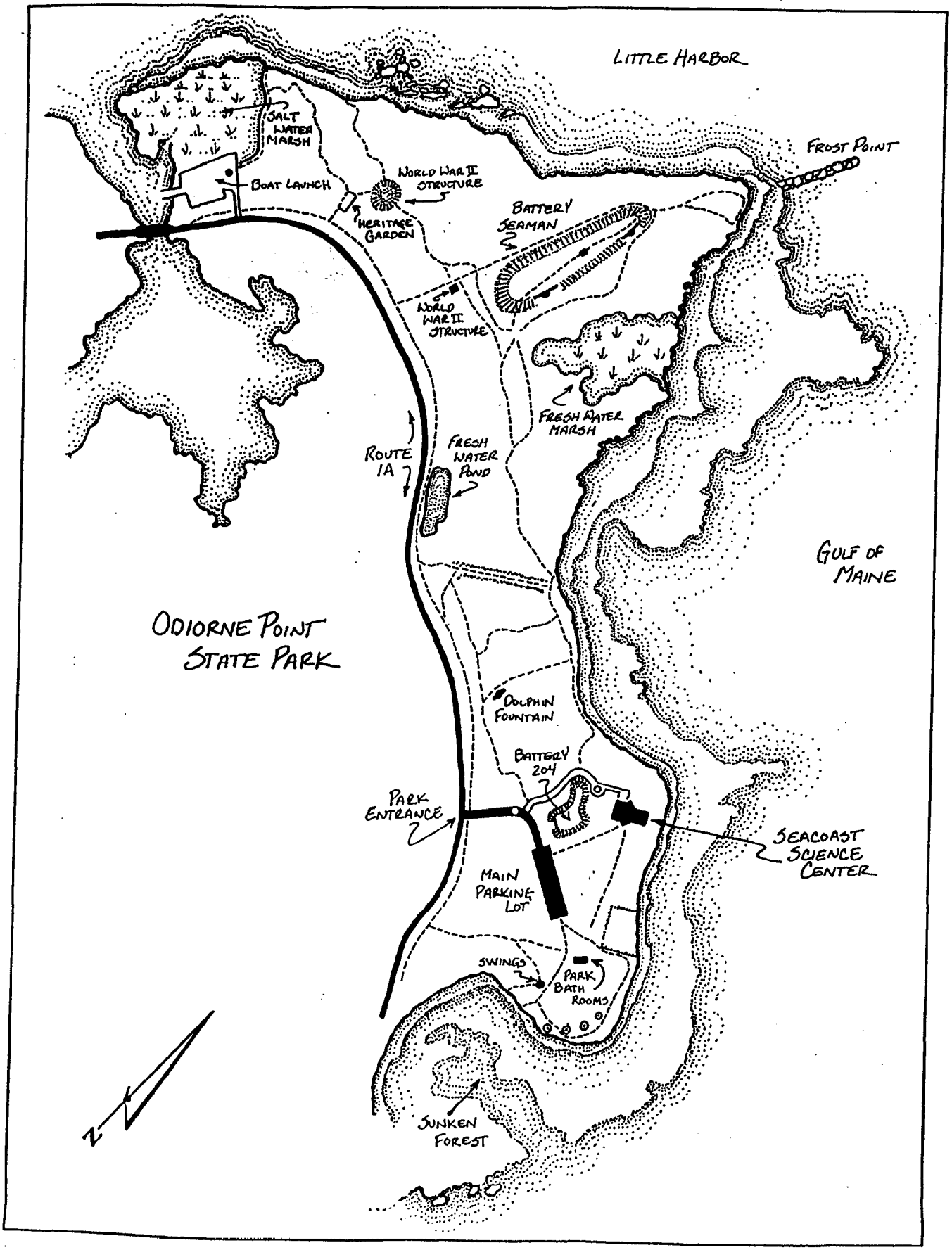
Groups occasionally choose to bring their school nurse on trips to handle any health needs. If this is not possible, a person certified in first aid training should accompany the group.

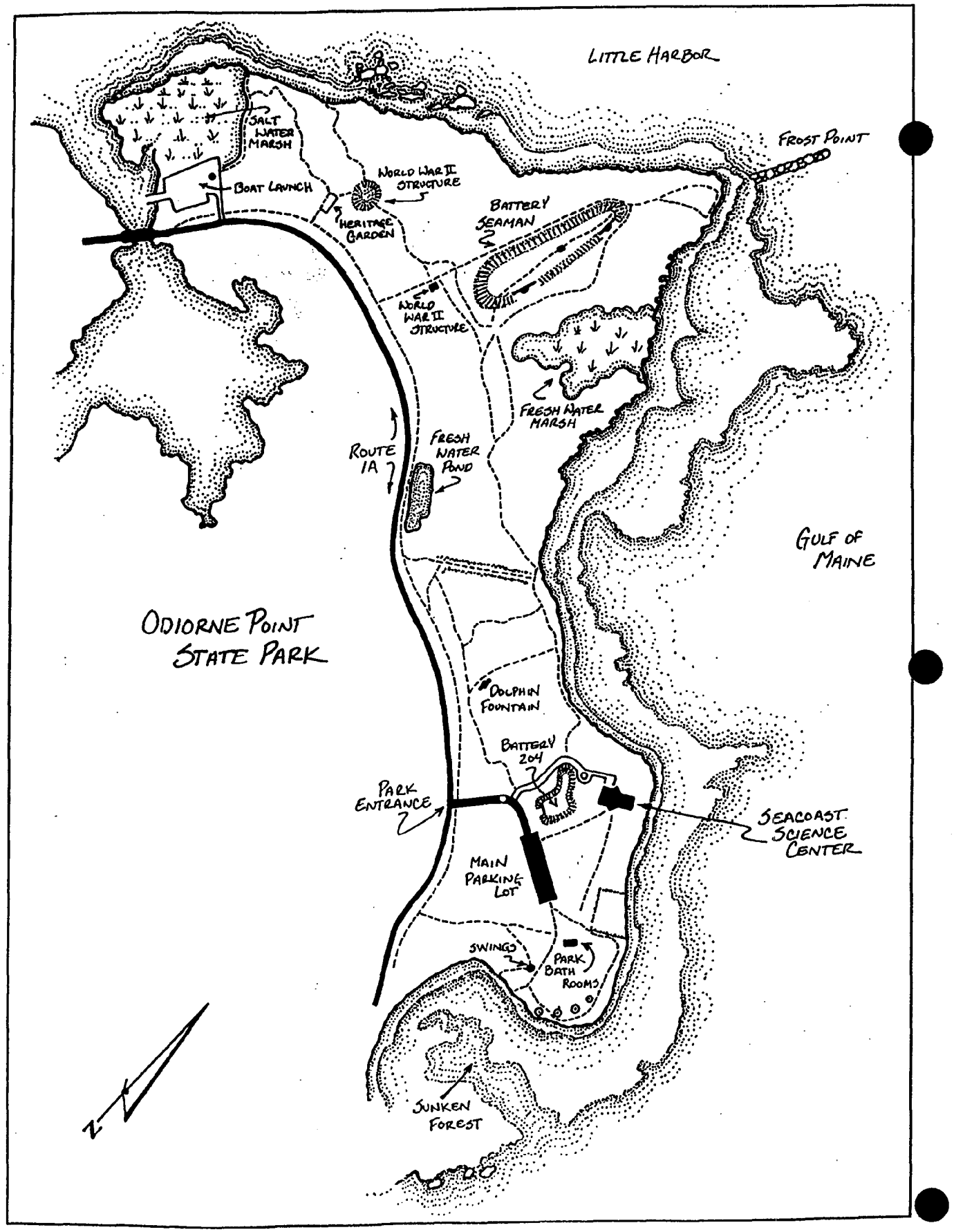


Directions to HCA Portsmouth Regional Hospital

Take Rt. 1 North to Rt. 1 bypass. Continue straight through one set of lights. At next set of lights, turn left on to Borthwick Ave. HCA Portsmouth Regional Hospital will be on your right.

HCA Portsmouth
Regional Hospital
333 Borthwick Avenue
Portsmouth NH 03801
(603) 436-5110


LITTLE HARBOR
SALT WATER MARSH
BOAT LAUNCH
WORLD WAR II STRUCTURE
HERITAGE GARDEN
FROST POINT
BATTERY JEAMAN
WORLD WAR II STRUCTURE
FRESH WATER MARSH
ROUTE 1A
FRESH WATER POND
GULF OF MAINE
ODIORNE POINT STATE PARK
DOLPHIN FOUNTAIN
BATTERY 204
PARK ENTRANCE
SEACOAST SCIENCE CENTER
MAIN PARKING LOT
SWINGS
PARK BATH ROOMS
SUNKEN FOREST
N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ROUTE 1A
FRESH WATER POND
GULF OF MAINE
ODIORNE POINT STATE PARK
DOLPHIN FOUNTAIN
BATTERY 204
PARK ENTRANCE
SEACOAST SCIENCE CENTER
MAIN PARKING LOT
SWINGS
PARK BATH ROOMS
JUNKEN FOREST

Exhibit hall/all season scavenger hunt

EXHIBIT ROOM SCAVENGER HUNT

___Rock Crab

___Periwinkle

___Limpet

___Dog Welk

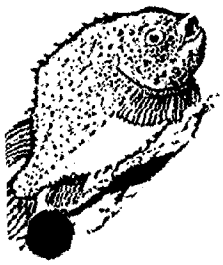
___Sponge

___Sea Star

___Crayfish

___Rockweed

___Barnacle



__Lumpfish

___Turtle

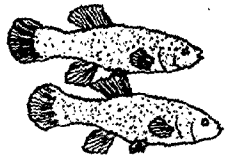
___Sea Anemone

___Blue Mussel

___Tunacate

___Shrimp

___Mummichog

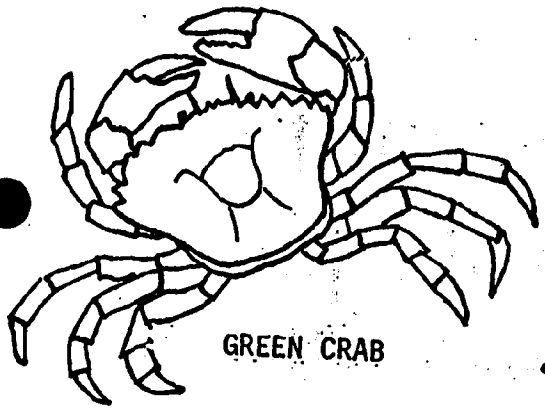


___Hermit Crab

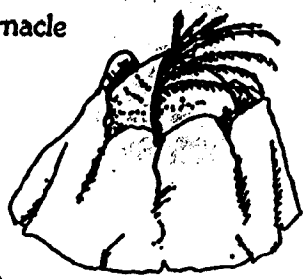
___Sea Urchin

___Pollock

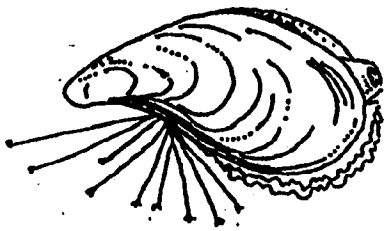
___Flounder



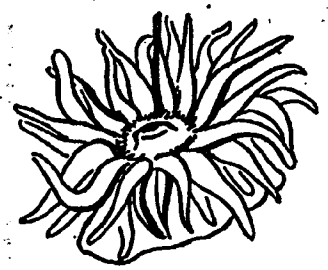
barnacle



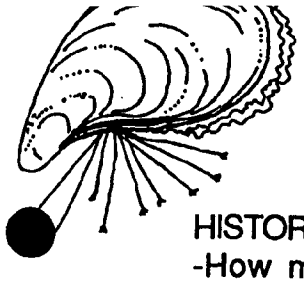
mussel



sea urchin



anemone



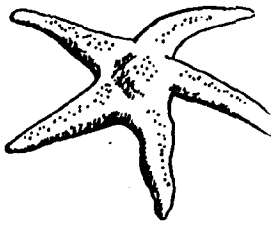
Scavenger Hunt

HISTORY:

-How many lighthouses can you see from the SSC?
-How many islands can you see from the SSC?
-What are the small buoys in the ocean for?
-What was the main resort in 1871 at Odiorne Point?
-Did there used to be a forest on the seacoast of New Hampshire?
-What does the S on the fireplace probable stand for?
-What is prohibited at Odiorne to protect the living plants and animals?

EXHIBITS:

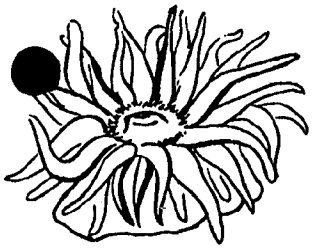
-How many habitats are found here at Odiorne?
-What are some creatures that the Pond Exhibit might contain?
-How long is the Gulf of Maine?
-What are some of the creatures that might live in the Uplands Terrarium?
-What critters live in a Salt Marsh?
-What are some of the creatures that might be found in the Meadow Terrarium?
-How many times a day does the Salt Marsh get flooded?
-What are tidepools?
-What exhibit would be a good place for:
  A) a big fish?
  B) Tadpoles?
  C) Sea Stars and Periwinkles?

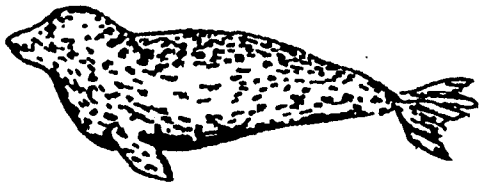


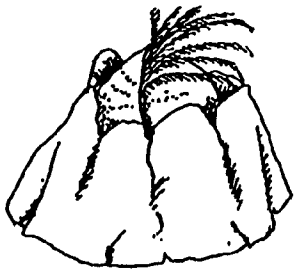
-How many of the following can you find in the SSC?

-Crabs	-Dolphins	-Light switches
-Sea Stars	-Seals	-Electrical outlets
-Fish	-Whales	-Lights
-Sea Urchins		-Windows

-Find one thing that comes from a Bird? What is it?
-Find one thing that comes from a Deer? What is it?
-Find one thing that comes from a Tree? What is it?
-Find one thing that has lots of teeth? What is it?







Scavenger Hunt

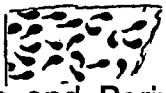
EXHIBITS:

-How many times a day does the Salt Marsh get flooded?

-What exhibit would be a good place for:

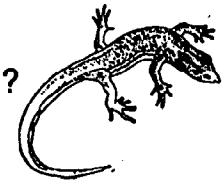
A) a big fish?

B) Tadpoles?



C) Sea Stars and Periwinkles?

D) Salamanders?



E) Frogs?

F) Mice or Voles?

G) Turtles?

WHAT DO YOU SEE:

-How many lighthouses can you see from the SSC?

-How many islands can you see from the SSC?

-What are the small buoys in the ocean for?

-How many of the following can you find in the SSC?

-Crabs
-Sea Stars
-Fish
-Sea Urchins

-Dolphins
-Seals
-Whales

-Light switches
-Electrical outlets
-Lights
-Windows

-Find one thing that comes from a Bird? What is it?

-Find one thing that comes from a Deer? What is it?

-Find one thing that comes from a Tree? What is it?

-Find one thing that has lots of teeth? What is it?

middle school

Scavenger Hunt

HISTORY:
-How many lighthouses can you see from the SSC?
-How many islands can you see from the SSC?
-What are the small buoys in the ocean for?
-Where did the original Explorers of Odiorne come from?
-Was Odiorne always a state park?
-What was the main resort in 1871 at Odiorne Point?
-Did there used to be a forest on the seacoast of New Hampshire?
-What does the S on the fireplace probable stand for?
-What is prohibited at Odiorne to protect the living plants and animals?

EXHIBITS:
-How many habitats are found here at Odiorne?
-What are some creatures that the Pond Exhibit might contain?
-How long is the Gulf of Maine?
-What are some of the creatures that might live in the Uplands Terrarium?
-What critters live in a Salt Marsh?
-What are some of the creatures that might be found in the Meadow Terrarium?
-How many times a day does the Salt Marsh get flooded?
-What are tidepools?
-What exhibit would be a good place for:
A) a flounder? B)water mites or dragonfly larvae? C) sea stars and periwinkles?

-How many of the following can you find in the SSC?

Crabs	Sea Anemone	Cars	Light switches
Sea Stars	Dolphins	Boats	Electrical outlets
Squid	Seals	Trees	Lights
Sea Urchin	Whales	Shells	Windows
Fish			

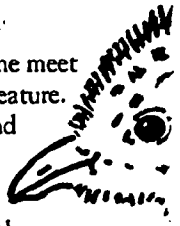
-Find one thing that comes from a Bird? What is it?
-Find one thing that comes from a Deer? What is it?
-Find one thing that comes from a Tree? What is it?
-Find one thing that has lots of teeth? What is it?

Bonus: History Questions
These questions are very difficult but give it a try-
-How many acres of land does the park at Odiorne cover?
-What was the name of the Indian tribe that first visited Odiorne?
-What did this tribe name the area?
-Who was the first person to journey to the New World and settle in New Hampshire?
-What was the name of the ship he sailed on?
-Who settled and started a homestead at Odiorne in 1660 giving the Park its original name?
-During World War II the military purchased the property and Odiorne Point became known as?
-How many years did the military own the property?

Program literature (excerpts)

Sharing Nature with Children brochure
Seasons of the Sea schedules
Vacation Camp session description
Spring school program brochure

	WEDNESDAY	Program Descriptions
JULY	15 #1 **Pond Safari Ages 6-10**	Ah, the life of a pond critter, surrounded by water in the heat of summer! Come discover how fascinating pond life can be as we dip for dragonfly nymphs, and search for the ever elusive mud puppy. Be sure to come prepared for our safari with boots and good insect repellent. (10am-12pm)
	22 #2 **Tidepool for tots Ages 4-6**	The rocky shore is alive with life and just waiting for our explorations! Join us at the sea's edge and get your sneakers wet as we learn about the intertidal world with expert UNH Marine Docents. Come prepared for wet feet and lots of discovery! (10am-12pm)
	29 #3 **Seacoast Stewards Ages 6-10**	The earth could use a new hero or two and you're just the person we're looking for! Come learn how to be an earth steward as we find treasures in Odiorne's trash and create artwork with recyclable materials. Learn to be a garbage artist and engineer! (10am-12pm)
AUGUST	5 #4 **Marsh Muckers Ages 7-10**	Let's "go'n'seine" with the Seacoast Science Center staff! We'll mill around in Odiorne's salt pannes and mud flats as we seine for creatures of the marsh. Bring your boots, insect repellent and a spare set of clothing for our muck explorations. (10am-12pm)
	12 #5 **The Lives of Leaves Ages 4-6 & 7-10**	Have you ever given a tree a hug? As Odiorne's trees come into full summer foliage, we'll explore their many mysteries from their roots to their tree tops. Join us as we shake hands with tree leaves and make friends with these gentle giants. (Separate sessions for each age group.) (10am-12pm)
	19 #6 **Beach Combers Club Ages 4-6 & 7-10**	There's more to the beach than just sand, and here's your chance to meet the creatures of the beach. We'll explore the depths of Odiorne's sandy beach and discover what animals call this place home. Come feel the sand between your toes! (Separate sessions for each age group.) (10 am-12pm)
	26 #7 **Life as a Lobster Ages 6-10**	Lobsters sure are "backward" animals, and we're here to tell you why! Come meet one of our local lobsters as we explore the ways of this bottom dwelling creature. We'll learn how valuable lobsters are to humans, and even do some pretend lobstering ourselves. Bibs and nutcrackers not required! (10am-12pm)
SEPTEMBER	2 #8 **Creature Feature Ages 4-8**	The new SSC tank residents have finally moved in and are waiting to be introduced! We'll meet our ocean friends, the periwinkle, the seastar and the green crab as we observe them close-up, and learn why they like to live here on the rocky shore. (10am-12pm)
	9 #9 **For the Birds! Ages 4-6**	Odiorne Point is alive with birds from the ocean to the forest! We'll unravel the mysteries of our flying friends as we search high and low for birds in our nearby woods. We'll touch real bird beaks and feathers, make our own wings and build our own nests! Come fly with us! (10am-12pm)



Sharing Nature With Children Registration Form

Adult(s) attending _____ Child(ren) attending/Ages _____

Address _____ Day phone (____)____-____ Evening phone (____)____-____

Program Choice (circle as many as you like): #1 #2 #3 #4 #5 #6 #7 #8 #9

Please list any special needs you or your children may have _____

REGISTRATION FEE

Members of ASNH and FOOPs: _____ programs at $8.00 per family = $_____

Non-members: _____ programs at $10.00 per family = $_____

Family membership dues ☐ ASNH ($35) ☐ FOOPs ($35) = $_____

TOTAL ENCLOSED $_____

Please make checks payable and mail to:
Seacoast Science Center
P.O. Box 674
Rye, NH 03870

Seasons of the Sea Seacoast Science Center weekend programs

OCTOBER	SATURDAY	SUNDAY	
Falcon Watch Join Steve Mirick, President of the Seacoast Chapter of the Audubon Society of New Hampshire to see if you can spot Peregrines, Merlins, Kestrels and Northern Harriers. Bring binoculars.	**3** **Falcon Watch** 9:00 am	**4** **Tidepool Tour** 11:00 am	**Tidepool Tour** Seasons change in the intertidal as they do on the coast. Join SSC Naturalist for an exploration of Odiorne's dynamic tide pools and meet the ocean's harbingers of fall.
Coastweeks Film Festival As the curtain closes on Coastweeks, celebrate life on and by the sea with a sea-faring film and plenty o' popcorn. ✉ **Tidepool Tour** (See Oct. 4th description)	**10** **Coastweeks Film Festival** 1:00 pm ✉ **Tidepool Tour** 4:00 pm	**11** **Coastweeks Finale Film Festival** 1:00 pm ✉	**Coastweeks Finale Film Festival** As the curtain closes on Coastweeks, celebrate life on and by the sea with sea-faring films for the entire family and plenty o' popcorn. ✉
Seaside Stroll SSC staff will lead you around Odiorne's meandering trails for an in-depth tour of the fascinating biology that is part of our shore during the autumn!	**17** **Seaside Stroll** 1:00 pm	**18** **Voles n' Moles** 7:00-9:00 am	**Voles n' Moles** Join SSC Naturalists for a how-to/hands-on demonstration of small *live* mammals. Find out about the habits of our small mammals and how to catch, handle and identify them.
Creature Feature Get in the mood for Hallowe'en at the Seaghost Science Center with this family feature film matinee and the short film, *The Halloween Dream*. ✉ Join us for a reasonably seasonal series of events.	**24** **Creature Feature** 12:00 ✉	**25** **Incredible Edibles** 12:30-3:00 pm ☎	**Incredible Edibles** This in-depth workshop will show you how to harvest plants without harm and how to dry and store the bounty. Karl Stedeul will lead us on this 2 1/2-hour program. ☎ **$15M/20NM**
Bats in the Belfry! Learn all about the natural history of bats and batbox building. Building materials provided. ☎**$8M/10NM** **Jack-O-Lantern Jubilee** Bring your imagination and carve as many as you can. Take your favorite one home! ☎ **$5M/7NM**	**31** ☎ Bats in the Belfry! 11:30 am ☎ Jack-O-Lantern Jubilee 1:00 pm Hallowe'en Howl ☎ Trail of Tales 5:00-8:40 pm The Hall of Howls 5:00-10:00 pm		Unless indicated, programs are free and registration is not required. Members of the Audubon Society of New Hampshire (ASNH) and Friends of Odiorne Point State Park (FOOP) are eligible for program discounts. Member prices are indicated by **M**, non-member prices by **NM**. For further information call 603-436-8043. ☎ = call the Center to sign-up for these events. Payment (when applicable) must be received 3 days after your call to hold your space. ✉ = donation requested.

Trail of Tales skits are performed by the Portsmouth Academy of Performing Arts Children's Theatre of the Seacoast Repertory Company. If you would like to help, please call 436-8043.

Tired of terror? Join us for the Hallowe'en Howl, an eerie and educational extravaganza for families, adults and friendly spirits of all kinds. There are two parts; the outdoor Trail of Tales (by registration only) and the indoor Hall of Howls (walk-in).

1) Trail of Tales – a moonlight walk to meet the mysterious and spellbinding creatures of the Haunted Shore (for adults and children 4-15 years old). See what's really brewing in the witches' cauldron; listen to the legends of local pirates! Trail trips begin every 20 minutes starting at 5:00 pm. Admission to the Trail of Tales is limited and includes admission to the Hall of Howls. Registration is required and space is available on a first-come first-served basis. **Call (603) 436-8043 to reserve your time.**

2) The Hall of Howls in the "Seaghost" Science Center is for all ages. Activities include games, crafts, exhibits, entertainment, fortune telling and more! Experience deep-water lighting in the Exhibit Hall; learn about different kinds of skulls. Costumes welcome! Admission includes the games, crafts, exhibits and activities in the Center. (Members: adults $2, children $1; non-members: adults $3, children $1). Fish printing on T-shirts, pumpkin carving and refreshments will be available for an additional charge.

The Seacoast Science Center at Odiorne Point State Park is managed by the Audubon Society of New Hampshire under contract with the State of New Hampshire, in affiliation with the Friends of Odiorne Point, Inc., and the UNH Cooperative Extension/Sea Grant Program.

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Trail of Tales Confirmation

To register: 1) call to reserve your time slot; 2) send payment to SSC, we must have it within 3 days to hold your space. You will receive confirmation that we have your payment. The Trail will run rain or shine, dress appropriately. Costumes are welcome!

Write your confirmed trail time here _____

_____
name of adult(s)

_____
number of child(ren)

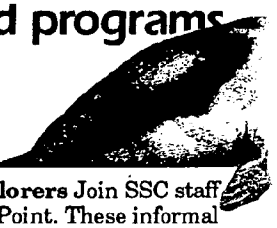
_____ I am a member of ❑ ASNH ❑ FOOP
phone: day evening

MEMBERS
Membership = $_____ ❑ ASNH ($35) ❑ FOOP ($35)
# adults @ $6 _____ = $_____
# child(ren) @ $4 _____ = $_____ TOTAL ENCLOSED $_____

NON-MEMBERS
adults @ $8 _____ = $_____
child(ren) @ $5 _____ = $_____ TOTAL ENCLOSED $_____

Make checks payable and mail to: The Seacoast Science Center
PO Box 674
Rye, NH 03870

Seasons of the Sea Seacoast Science Center weekend programs



NOVEMBER

	SATURDAY	SUNDAY	
Octopus, Octopus This Cousteau Society film (22 min.) examines the habits and habitat of this graceful and intelligent undersea creature, a victim of legend and fantasy. Come enjoy the show! ✉	7 **Octopus, Octopus** 12:00 pm & 2:00 pm ✉	8 **Odiorne Point Explorers** 1:30 pm 🌲	**Odiorne Point Explorers** Join SSC staff and explore Odiorne Point. These informal walks are part of a monthly series designed for families to share nature and witness seasonal changes in Odiorne's habitats. 🌲
Operation Tree Release Some of Odiorne Point's oldest inhabitants need help. Join our horticulturalist Louise Tallman for an informative gloves-on program on invasive plants and techniques for their removal. 🌲	14 **Operation Tree Release** 1:00 pm 🌲	15 **I Remember Mammals** 2:30 pm	**I Remember Mammals** Join SSC staff for a program on our local mammals. Skulls, skins and slides will highlight this lesson on some of our furry cousins which roam Odiorne Point.
Aquarium Workshop This in-depth workshop will show you how to use aquaria as models for environmental, adaptational and behavioral lessons. Join SSC Program director Steve Miller. ☎	21 **Aquaria as Ecosystems** 9:00 am - 12:30 pm ☎	22 **Project Feederwatch** 3:00 pm ✉	**Project Feederwatch** Help us collect data from our bird feeder as part of a national program out of Cornell University's Lab of Ornithology. We will build simple bird feeders and discuss bird-feeding techniques. ✉
Isles of Shoals: Past & Present Local historian Bob Tuttle leads this slideshow talk on the history of the Isles of Shoals. Come find out about life "Ten Miles Out."	28 **History of the Isles of Shoals** 2:00 pm	29 **What's Up, Duck?** 10:00-12:00 am 🌲	**What's Up, Duck?** Join SSC Naturalists for an exploration of Odiorne's rocky shoreline. Several duck species (and other birds) winter in New England. Bring your binoculars and scopes. Join us for hot cocoa afterward! 🌲

DECEMBER

	SATURDAY	SUNDAY	
Observing Nature Discover what the wildlife of Odiorne Point are doing. Jeff Barry will help you develop your "sense" of wildlife and get on "track" of the animals which call Odiorne home. 🌲	5 **Observing Nature** 2:00 pm 🌲	6 **Odiorne Point Explorers** 1:30 pm 🌲	**Odiorne Point Explorers** Join SSC staff and explore Odiorne Point. These informal walks are part of a monthly series designed for families to share nature and witness seasonal changes in Odiorne's habitats. 🌲
Holiday Open House Join us for our first celebration of the holiday season. We'll have carriage rides, craft and gift-making booths, carols, eggnog and a crackling fire at night. See complete description on back page. ☎	12 **Holiday Open House** 11:00 am - 9:00 pm ☎	13 **Holiday Open House** 12:00 pm - 5:00 pm ☎	**Holiday Open House** Continue our holiday celebration. Take a carriage ride, make crafts and gifts, enjoy eggnog by a crackling fire. See back page for details. ☎
Christmas Bird Count Help the Seacoast Chapter of the Audubon Society of New Hampshire in this annual reckoning of the birds. Join SSC Staff to scour Odiorne Point for all the bird species we can find. ☎ 🌲	19 **Christmas Bird Count** 9:00 am... ☎ 🌲	20 **Origami Organisms** 2:00 pm ✉	**Origami Organisms** Join SSC Staff for a program highlighting the art of Japanese paper-folding. Make a shark, a penguin, a dinosaur, or a whale; all perfect for our holiday tree or yours. ✉
Seacoast Science Center Family Day Bring the family to the Center for a relaxing visit. Walk the nature trails around Odiorne Point and visit the local marine and freshwater animals in our exhibit room.	26 **SSC Family Day** 10:00 am-5:00 pm	27 **Project Feederwatch** 3:00 pm ✉	**Project Feederwatch** Help us collect data from our bird feeder as part of a national program out of Cornell University's Lab of Ornithology. We will build simple bird feeders and discuss bird-feeding techniques. ✉

Unless indicated, programs are free and registration is not required. Outdoor programs are weather-dependent. Please call the Center for details.

🌲 = Outdoor program. Call the Center to confirm.

☎ = Call the Center to sign-up for these events. Payment (when applicable) must be received 3 days after your call to hold your space.

✉ = Donation requested.

The Seacoast Science Center at Odiorne Point State Park is managed by the Audubon Society of New Hampshireunder contract with the State of New Hampshire, in affilation with the Friends of Odiorne Point, Inc., and the UNH Cooperative Extension/Sea Grant Program

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Seacoast Holiday Camp

Seacoast Holiday Camp is an environmental program designed to teach children in grades K-6 about nature the exciting way: using hands-on fun for learning! As children play games, explore the outdoors and create artwork, they learn about their environment and how to take care of it through direct, interactive experiences.

Camp will meet Monday through Thursday from December 28—31. Campers can be enrolled on a daily or 4-day session basis. Cost is $25M/$30NM/day; $85M/$100NM/4-day session.

Members of the Audubon Society of New Hampshire (ASNH) and Friends of Odiorne Point (FOOPS) at the Family membership level (or higher) are entitled to a reduced camp prices. Member/non-member rates are indicated as M/NM respectively. Join or upgrade your membership when you register and receive the member discount right away.

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Program Description

Feathers A' Flying: Monday, December 28
Whoooo can stand the harsh New Hampshire winters? Observe the many birds who call Odiorne Point their winter resort. Meet a year round resident, the owl and share in the winter secrets our feathered friends know so well.

Whale Bone-anza: Tuesday, December 29
Marine mammal lovers take note! Join our flipper festival! We'll learn all about local whales and dolphins and even investigate some bones salvaged from a whale stranding. Marine mammal puppet making will complete our cetacean celebration.

Winter Wildlife Wonders: Wednesday, December 30
Become a wildlife detective as we search for active Odiorne animals. We'll explore the park to find their homes and make a few of our own outdoor winter dwellings. Bring your best observational skills for our detective work!

Rocky Shore Rookies: Thursday, December 31
Life in the rocky shore tidepools abounds even in the winter! We'll explore the exciting world of the tidepool and introduce ourselves to some of its winter residents. Rubber gloves and boots (plus warm, layered clothing) will make our explorations comfortable even if the snow flies!

Registration Information

Registration is accepted by mail or in person only; preregistration is required. Groups are based on grade completed. Grades K-3 children will be divided by age based on enrollment. We will try to honor requests if your child wishes to be with a companion. All camp sessions run from 9 - 3 each day. Early drop off begins at 8:30 am. After-hours care is available for an additional fee.

Please make checks payable and mail with health form (on back of registration form to:

Seacoast Science Center
P. O. Box 674
Rye, New Hampshire 03870

Questions? Please contact the SSC at 603-436-8043.

After-hours care
After-hours care is available for campers from 3:00-5:30 for $5 M/$6 NM per day. After-hours care is supervised free time, not an extension of camp activities. Register for this when you register for camp.

Cancellation policy
If you cancel less than 10 days prior to camp you will receive a 90% refund if we can fill your vacancy; if we cannot fill it, you will receive a 70% refund.

Camper financial assistance
Limited financial aid is available. Please call us for details.

Holiday Camp Registration Form

(Please complete both sides; one form/camper—don't forget to sign the authorization statement.)

_____
Camper name (first, last)

Last grade COMPLETED (circle)
K 1 2 3 4 5 6

Camper age, birthday:_____

_____
Parent/guardian name (first, last)

_____
Street Address

_____
City State Zip

_____
Day phone Evening phone

Monday
CAMP $25M/$30NM (check) ☐ After care $5M/$6NM ☐

Tuesday
CAMP $25M/$30NM (check) ☐ After care $5M/$6NM ☐

Wednesday
CAMP $25M/$30NM (check) ☐ After care $5M/$6NM ☐

Thursday
CAMP $25M/$30NM (check) ☐ After care $5M/$6NM ☐

Current Family Membership: ☐ ASNH ☐ FOOPS

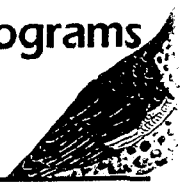
Payment method: ☐ Mastercard ☐ Visa
Card No. _____
Expiration date _____

Signature _____

____ Camp days at $_____ each = $_____
____ Full camp sessions @ $_____ each = $_____
____ After care periods at $_____ each = $_____
Membership fee(s) ☐ ASNH ☐ FOOPS = $_____
Donation to Campership Fund = $_____

TOTAL ENCLOSED = $_____

Seasons of the Sea Seacoast Science Center weekend programs



JANUARY

	SATURDAY	SUNDAY	
Odiorne Point Explorers Explore Odiorne Point with the SSC staff. These informal walks are part of a monthly series designed for families to share nature and witness seasonal changes in Odiorne's habitats. 🌲	2 **Odiorne Point Explorers** 1:30 pm 🌲	3 **Project Feederwatch** 3:00 pm ✉	**Project Feederwatch** Learn about data you can collect at your own bird feeder. The SSC participates in this program from Cornell's Lab of Ornithology and will help you build a simple bird feeder. ✉
Portsmouth: American Mosaic This 20-minute film paints a picture of Portsmouth in the days of yore. Included are depictions of social customs and stage coach travel in the days of John Wentworth. ✉	9 **Portsmouth: American Mosaic** 1:00 & 3:00 pm ✉	10 **Winter Waterfowl** 9:00-11:00 pm 🌲	**Winter Waterfowl** Join waterfowl expert Chuck Flint for this program on Odiorne's wintering ducks. A slideshow is followed by a walk along our rocky shores and marshes. Bring your binoculars and scopes! 🌲
A Single Shot Never Fired Les Stevens guides us through the history of our coastal forts from 1623 to 1945. This slideshow will cover the role of Fort Dearborn as one of the many Portsmouth Harbor fortifications.	16 **A Single Shot Never Fired** 1:30 pm	17 **Project Feederwatch** 3:00 pm ✉	**Project Feederwatch** Learn about data you can collect at your own bird feeder. The SSC participates in this program from Cornell's Lab of Ornithology and will help you build a simple bird feeder. ✉
Salt of the Earth This one hour video on the life of lobstermen has been shown on PBS in its half-hour version. Award-winning video maker and UNH professor Randy Olson filmed this video interview in Maine.	23 **Salt of the Earth** 1:00 pm ✉	24 **Seascape Workshop** 1:00 pm ☎	**Seascape Workshop** Local artist Stan Moeller teaches our first winter painting workshop. You bring brushes, oil or acrylic paints, and an easel; we provide creative atmosphere, experience and a critical eye. ☎

FEBRUARY

	SATURDAY	SUNDAY	
Odiorne Point Explorers Explore Odiorne Point with the SSC staff. These informal walks are part of a monthly series designed for families to share nature and witness seasonal changes in Odiorne's habitats. 🌲	6 **Odiorne Point Explorers** 1:30 pm 🌲	7 **Project Feederwatch** 3:00 pm ✉	**Project Feederwatch** Learn about data you can collect at your own bird feeder. The SSC participates in this program from Cornell's Lab of Ornithology and will help you build a simple bird feeder. ✉
Seacoasts: A First Film Wind, water and land interact to shape coasts the world over. This 10-minute film describes the formation of cliffs, sandy and rocky shores and marshes and the variety of life found in each. ✉	13 **Seacoasts: A First Film** 1:00 & 3:00 pm ✉	14 **See 'n' Ski** 1:30 pm 🌲	**See 'n' Ski** Explore Odiorne Point in a different way. Join SSC naturalists as we investigate our nature trails via X-country skis. If winter refuses to cooperate, we'll explore on foot! Bring your own skis! 🌲
A Tropical Trip Leave the wintry winds behind for an hour. SSC Program Director Steve Miller will present a slideshow on Caribbean coral reefs. Don't miss this warm-water walk on the wild side.	20 **A Tropical Trip** 2:00 pm	21 **Project Feederwatch** 3:00 pm ✉	**Project Feederwatch** Learn about data you can collect at your own bird feeder. The SSC participates in this program from Cornell's Lab of Ornithology and will help you build a simple bird feeder. ✉
Tick Talk,Tick Talk. SSC Naturalist Wendy Hawks leads this slideshow and discussion on mice, ticks and Lyme disease. White-footed mice are one of the primary carriers of this tick-an increasing problem in rural areas.	27 **Tick Talk, Tick Talk** 1:00 pm	28 **"Wee Took Great Store of Codfish"** 2:00 pm	**"Wee Took Great Store of Codfish"** Dr. Faith Harrington of USM leads this slide-show of a 17th century fishing community. Discover the architecture, landscapes and cultural history of the Isles of Shoals.

Unless indicated, programs are free and registration is not required. Outdoor programs are weather-dependent. Please call the Center (603) 436-8043 for details.

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☎ = call the Center to sign-up for these events. Payment (when applicable) must be received 3 days after your call to hold your space.

✉ = donation requested.

The Seacoast Science Center at Odiorne Point State Park is managed by the Audubon Society of New Hampshire under contract with the State of New Hampshire, in affiliation with the Friends of Odiorne Point, Inc., and the UNH *Cooperative Extension/Sea Grant Program*

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Winter Vacation Camp

Winter Vacation Camp is an environmental program designed to teach children in grades K-6 about nature the exciting way: using hands-on fun for learning! As children play games, explore the outdoors and create artwork, they learn about their environment and how to take care of it through direct, interactive experiences.

To accomodate various school vacation schedules, we are running the same camp program for two consecutive weeks: Monday through Friday, February 15–19 and February 22–26. Campers may be enrolled per day ($25M/$30NM) or for all five days ($115M/$135NM).

Members of the Audubon Society of New Hampshire (ASNH) and Friends of Odiorne Point (FOOPS) at the Family membership level (or higher) are entitled to reduced camp prices. Member/non-member rates are indicated as M/NM respectively. Join or upgrade your membership when you register and receive the member discount right away.

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Program Description

Ocean Predators: Monday, February 15 & 22
Who are the oceans' fiercest predators? You'll be surprised! Come learn about marine predators from the Great White Shark to the tiny Green Crab. We'll even meet some local hunters of our rocky shore.

Rock'n' Reptiles: Tuesday, February 16 & 23
While most of the seacoast's reptiles are napping, the SSC's snakes 'n' turtles are up and waiting to introduce themselves. Join us as we investigate the secrets of cold-blooded crawlers and meet a live boa constrictor!

Who's Home's Here?: Wednesday, February 17 & 24
Now is an excellent time to find the homes of our winter residents and discover those left by the summer visitors. Learn why rabbits and woodpeckers live where they do and not with you.

Endangered Species: Thursday, February 18 & 25
From the tropics to the Arctic, some animal and plant species are threatened. We will introduce you to some locally endangered species and show you how we humans can help.

Junior Rangers: Friday February 19 & 26
Let's explore Odiorne Point's varied habitats and learn the ways of the Park Ranger. We will roam the park, learning about its creatures and its history. We'll also learn how to protect the park's flora and fauna.

Registration Information

Registration is accepted by mail or in person only, and you must register prior to start of camp. Groups are based on present grade level. Grades K-3 children will be divided by age depending upon enrollment. We will try to honor requests if your child wishes to be with a companion. All camp sessions run from 9 - 3 each day. Drop off begins at 8:30 am. After-hours care is available for an additional fee.

Please make checks payable and mail with health form (on back of registration form) to:

Seacoast Science Center
P.O. Box 674
Rye, New Hampshire 03870

Limited financial aid is available. Please call for details.

After-hours care

After-hours care is available for campers from 3:00-5:30 for $5 M/$6 NM per day. After-hours care is supervised free time, not an extension of camp activities. Register for this when you register for camp.

Cancellation policy

If you cancel less than 10 days prior to camp you will receive a 90% refund if we can fill your vacancy; if we cannot fill it, you will receive a 70% refund.

Questions? Please contact the SSC at (603) 436-8043.

Winter Camp Registration Form

(Please complete both sides for each camper and be sure to sign authorization statement.)

_____
Camper name (first, last)

PRESENT Grade Level (circle) K 1 2 3 4 5 6

Camper age, birthday: _____

_____
Parent/guardian name (first, last)

_____
Street Address

_____
City State Zip

_____
Day phone Evening phone

Week 1 (Feb. 15-19) ❒ Week 2 (Feb 22-26) ❒

Monday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Tuesday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Wednesday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Thursday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Friday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Current Family Membership: ❒ ASNH ❒ FOOPS

Payment method: ❒ Mastercard ❒ Visa ❒ Check

Card No. _____

Expiration date _____

Signature _____

____ Camp days @ $_____ each = $_____
____ Full camp sessions @ $_____ each = $_____
____ After care periods @ $_____ each = $_____

Membership fee(s) ❒ ASNH ❒ FOOPS = $_____

Donation to Campership Fund = $_____

TOTAL ENCLOSED = $_____

Spring Vacation Camp

Spring Vacation Camp is an environmental program designed to teach children in grades K-6 about nature the exciting way: using hands-on fun for learning! As children play games, explore the outdoors and create artwork, they learn about their environment and how to take care of it through direct, interactive experiences.

To accommodate various school vacation schedules, we are running the same camp program for two consecutive weeks: Monday through Friday, April 19-23 and April 26-30. Campers may be enrolled per day ($25M/$30NM) or for all five days ($115M/$135NM).

Members of the Audubon Society of New Hampshire (ASNH) and Friends of Odiorne Point (FOOPS) at the Family membership level (or higher) are entitled to reduced camp prices. Member/non-member rates are indicated as M/NM respectively. Join or upgrade your membership when you register and receive the member discount right away.

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Program Descriptions

Walk on the Wild Side: Monday, April 19 & 26
The birds and mammals of the seacoast are waking up! Come learn about the springtime habits of our furry and feathered friends. Meet some local birds of prey and learn who will become their favorite springtime meals.

Pond Wonderful: Tuesday, April 20 & 27
Our freshwater pond harbors many spring secrets. From beavers and birds to fish and whirligig beetles, 'tis the season to get wet! We'll meet everyone in the freshwater food web, so put on your mucking boots and grab a net!

Kissed with a Seal: Wednesday, April 21 & 28
Besides whales, seals are New England's only other true marine mammal. Learn about our five types of seals as we scour the shores for a view of this shy but inquisitive creature. Make a pinniped puppet for our seal celebration!

Tiptoe Through the Tidepools: Thursday, April 22 & 29
Life in the rocky shore tidepools is up and running (or at least crawling)! We'll get our shoes wet discovering how the plants and animals fight for springtime space. You'll be surprised who's hiding between the tides!

Leafing So Soon?: Friday April 23 & 30
Odiorne's largest residents are awakening! We'll discover the fascinating life of our local plants and their relatives in the tropical forests. We'll learn why plants are so important to humans and what we can do to ensure their survival.

Registration Information

Registration is accepted by mail or in person only, and you must register prior to start of camp. Groups are based on present grade level. Grades K-3 children will be divided by age depending upon enrollment. We will try to honor requests if your child wishes to be with a companion. All camp sessions run from 9 - 3 each day. Drop off begins at 8:30 am. After-hours care is available for an additional fee.

Please make checks payable and mail with health form (on back of registration form) to:

Seacoast Science Center
P.O. Box 674
Rye, New Hampshire 03870

Limited financial aid is available. Please call for details.

After-hours care
After-hours care is available for campers from 3:00-5:30 for $5M/$6NM per day. After-hours care is supervised free time, not an extension of camp activities. Register for this when you register for camp.

Cancellation policy
If you cancel 10 days prior to camp you will receive a 90% refund; if you cancel in less than 10 days, you will receive a 70% refund.

Questions? Please contact the SSC at (603) 436-8043.

Spring Camp Registration Form

(Please complete both sides for each camper and be sure to sign authorization statement.)

_____
Camper name (first, last)

PRESENT Grade Level (circle) K 1 2 3 4 5 6
Camper age, birthday: _____

_____
Parent/guardian name (first, last)

_____
Street Address

_____
City State Zip

_____
Day phone Evening phone

Week 1 (Apr. 19-23) ❒ Week 2 (Apr. 26-30) ❒

Monday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Tuesday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Wednesday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Thursday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Friday
CAMP $25/$30NM (check) ❒ After care $5M/$6NM ❒

Current Family Membership: ❒ ASNH ❒ FOOPS

Payment method: ❒ Mastercard ❒ Visa ❒ Check

Card No. _____

Expiration date _____

Signature _____

____ Camp days @ $_____ each = $_____
____ Full camp sessions @ $_____ each = $_____
____ After care periods @ $_____ each = $_____
Membership @ $35 ❒ ASNH ❒ FOOPS = $_____
Donation to Campership Fund = $_____
TOTAL ENCLOSED = $_____

Seasons of the Sea Seacoast Science Center weekend programs

MARCH

	SATURDAY	SUNDAY	
Odiorne Point Explorers Join SSC staff and explore Odiorne Point. These informal walks are part of a monthly series designed for families to share nature and witness seasonal changes in Odiorne's habitats.	**6** **Odiorne Point Explorers** 1:30 pm	**7** **Something Fishy** 1:00 pm	**Something Fishy** Come learn about marine science happening around the Isles of Shoals. Phil Levin of UNH discusses his research on local fish species, their reliance on algae and man's influence on both.
SSC Maple Sugar Celebration It's that season again! Take a wagon ride to our sugar bush, a demonstration of the sugaring process, and some maple treats. Help us to celebrate the sweet arrival of spring!	**13** **Maple Sugar Celebration** 11:00 am-5:00 pm	**14** **New Hampshire Maple** 1:00 & 3:00 pm	**New Hampshire Maple** Stop by for a viewing of a 17-minute film on the Yankee tradition of "sugaring." Narrated by a maple sugar producer, old and new methods of maple sugaring are illustrated.
Rain Forests Workshop Come learn about these fragile habitats. As part of the National Wildlife Week theme, we offer this workshop to teachers and lay persons. A Rain Forest information packet is included.	**20** **Rain Forests Workshop** 10:00am $6M/8NM	**21** **Spring Waterfowl** 1:00 pm	**Spring Waterfowl** Waterfowl expert Chuck Flint will lead this program on Odiorne's spring ducks. A slideshow will be followed by a walk along our rocky shores and marshes. Bring your binoculars and scopes!
Wings Over the NH Seacoast Paul LaCourse of the Audubon Society's Seacoast Chapter will present this slide/talk program. This program explores our coastal habitats while emphasizing their diverse birdlife.	**27** **Wings Over the New Hampshire Seacoast** 2:00 pm	**28** **Painting Workshop** 1:00pm $14M/16NM	**Painting Workshop** Local artist Stan Moeller leads this monthly painting workshop. You bring brushes, oil or acrylic paints, and an easel; we provide the creative atmosphere, experience and critical eye.

APRIL

	SATURDAY	SUNDAY	
Odiorne Point Explorers Join SSC staff and explore Odiorne Point. These informal walks are part of a monthly series designed for families to share nature and witness seasonal changes in Odiorne's habitats.	**3** **Odiorne Point Explorers** 1:30 pm	**4** **Birder's Brunch** 8:00 am	**Birder's Brunch** The early bird gets the worm; the early birder gets to watch the birds eat the worm! Join Steve Mirick of the ASNH Seacoast Chapter to catch some early birds and then an SSC-style breakfast.
Rocky Shore Exploration Join SSC staff naturalists for an exploration of Odiorne Point's tidepools. Come see who's out and about along our rocky shore. Dress warmly for this kick-off to our tidepooling season.	**10** **Rocky Shore Exploration** 10:00 am	**11** **The Marsh Community** 1:00 & 3:00 pm	**The Marsh Community** This 11-minute film depicts the wide variety of living things found in a typical northern marsh. The ecology of these fragile systems is explored from their formation to their possible fate.
The Successful Tidepool Tour Learn the secrets of leading a successful field trip to the rocky shore. Trip planning and reinforcing activities are some of the skills teachers and lay persons need to lead successful trips.	**17** **The Successful Tidepool Tour** 1:00 pm $20M/25NM	**18** **Up a Tidal Creek** 9:30 am	**Up a Tidal Creek** The SSC staff are holding an Earth Day paddle in the marsh where we will explore changes close-up. Bring canoe, paddles, lifevests and snacks. Meet at the boat launch.
The Sky's The Limit Paul Kursewicz of the Astronomical Society of Northern New England leads this exploration of our stars, moon and planets. An afternoon slideshow will prep you for our evening star party.	**24** **The Sky's the Limit** 1:00 & 8:00 pm	**25** **Painting Workshop** 1:00 pm $14M/16NM	**Painting Workshop** Local artist Stan Moeller leads our monthly painting workshop. You bring brushes, oil or acrylic paints, and an easel; we provide the creative atmosphere, experience and critical eye.

= donation requested
= outdoor program and weather dependent. Please call the Center to verify.
= call the Center to sign-up for these events. Payment (when applicable) must be received 3 days after you call to hold your space.
M = Price for member of the Audubon Society of New Hampshire or the Friends of Odiorne Point
NM = price for non-member.

Unless indicated, programs are free and registration is not required. Please call the Center for details.

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PROGRAMS

Tide Pool Programs

With its endless nooks and crannies to explore, the rocky shore provides an opportunity for marine education, and Seacoast Science Center tide pool programs take full advantage of this fascinating environment. All tide pool programs can be adapted for all ages and physical abilities. For groups with more than 60 participants, contact the SSC to arrange a custom program.

Through the Looking Glass (TTLG)
For up to 30 participants
Now in its eleventh year, this popular field trip and teacher workshop program boasts a six to one student to teacher ratio and provides an all-day workshop for educators. Divided into smaller groups, your students will enjoy a rocky shore lesson, an in-depth intertidal exploration, and interesting reinforcer activities. A teacher workshop prior to the trip date provides the "how to" information for any field work and prepares you for an outstanding marine experience with your students.
Program length: 2 to 3 hours.
Price: $145/program, includes required workshop and support materials for program coordinator; $20 each additional workshop participant

Rocky Shore Exploration
For 20 to 60 participants
Designed to assist educators with their class trips to Odiorne Point State Park, Rocky Shore Exploration is the tide pool program option for larger groups of students. Participants receive a brief rocky shore lesson, then explore the shore with staff naturalists who travel between student groups and assist with identification and explanations. A short reinforcing activity completes the program. The maximum student to naturalist ratio for this program is 30:1.
Program length: 2 hours
Price: $3/Student; price includes support materials for program coordinator

Rocky Shore Slide Show Presentation
Up to 100 participants
Explore the major zones of the rocky shore, and meet the intertidal organisms who call this harsh environment home. Discover what difficulties rocky shore inhabitants such as sea stars and periwinkles face during their day to day survival. This slide show can be combined with the Rocky Shore Exploration program or given at your school.
Program length: 30-45 minutes
Price: $60/presentation (plus travel if at your school)

Slide Shows

For up to 100 participants
New slide shows highlighting Odiorne Point's natural and cultural history are excellent learning opportunities for larger groups or those unable to participate in longer programs. All slide shows can be combined with other programs or given at your school; custom slide shows can be developed upon request. Call for price and scheduling information.
Program length: 30-45 minutes
Price: $60/presentation (plus travel if at your school)

The Gulf of Maine
Few Northeast residents know much about this delicate ecosystem, though located right outside their coastal back door. From fisheries to seaports, learn why the Gulf of Maine is among the most important resources of the Northeast.

The Rocky Shore
See Tide Pool Programs

Custom Programs

The SSC has a tradition of tailoring programs to meet the needs of various organizations. Custom programs can be designed to meet your curriculum needs. They can include the programs described above, or can cover topics such as marine biology, cultural history and the natural sciences. Call to discuss how we can meet your specific program needs.

Upland Programs

Odiorne Point supports five upland habitats in the park, all of which invite exploration and learning opportunities. All upland programs focus on the plants and animals unique to each ecosystem and teach participants about nature through hands-on activities. These programs range from interpretive nature hikes to systematic sampling programs. All upland programs are for up to 20 participants and last from two to three hours. For groups with more than 20 participants, contact the SSC to arrange a custom program.
Price: $80-120/program

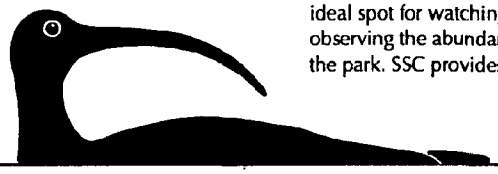
Forest and Meadow
Exploring the importance of these two ecosystems, participants study trees, soil, grasses and wild flowers while learning about concepts such as decomposition, nutrient cycling, transpiration, and oxygen production. A comparison of the two ecosystems will help us explore the concepts of succession and so called "survival of the fittest!"

Fresh Water Pond
From the formation of ponds, to the adaptations of the insects living within them, participants learn the fascinating facts about ponds and the animal and plant life they support. Students wade into the pond to seine for insects, sample water for oxygen content and sift through pond muck in search of discoveries.

Fresh Water Marsh
Located only 50 feet from the Atlantic Ocean, Odiorne Point's fresh water marsh is indeed a unique environment. Students search among the cattails and rushes for signs of both small insects and large mammals alike. Find out the hazards a fresh water marsh faces from the open ocean.

Salt Water Marsh
At any given time, this critical habitat is a nursery, sponge, sewage treatment plant and important resting ground. Participants roll up their sleeves and immerse themselves in the sweet goo of the salt marsh as we search for the plants and animals so vital to this fragile community.

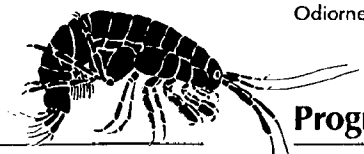
Bird Observation
From song birds in the spring to sea ducks in the winter, Odiorne Point is an ideal spot for watching migrating birds. Students learn about migration while observing the abundant coastal and upland bird species as they pass through the park. SSC provides the binoculars, field guides, and the expertise.



Wings Over New Hampshire's Coast
Despite its small size, New Hampshire's coast hosts hundreds of migrating and residential bird species throughout the year. Who are these birds and what draws them to NH's coast? Find out whose wings are over New Hampshire.

Odiorne Point in Time and Place
Designed as an "indoor tour" of Odiorne Point's three hundred acres, participants travel to Odiorne's rock walls and rocky shore without leaving the Seacoast Science Center!

The Shot Never Fired
At the start of World War II, Odiorne Point became Fort Dearborn to protect the coast and Portsmouth Harbor. Learn about the strategic role the guns of Odiorne played in our nation's defense.



Program Registration

To register for the programs listed on this page, please call the Program Director at 603-436-8043